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THE DOCTOR'S FUTURE.*

BY CHARLES L. DANA, M. D.,
New York.

About the year 1280, A. D., a noted physician, Arnaldus of Villa Nova, was imprisoned, expelled from Paris, and nearly burned at the stake for making predictions not agreeable to the savants of his time. I do not suppose I am in any such danger, but the position of a prophet is one of much delicacy, and I do not pretend to have the qualifications of a sound and competent soothsayer. So I hasten to say that I am not looking very far ahead.

There are certain present conditions and tendencies which are very much in evidence. They are not guesses, but facts, and one can, by recognizing and interpreting them, make inferences as to the more immediate medical future which should have greater value than the guess of a Roman augur or the verses of a Delphic priestess. Let me begin, then, with a statement of some of the facts in the present medical situation.

STATISTICAL.

In the last thirty years the number of physicians has increased, but not so fast as our population, and in the last seven years the number has actually decreased both absolutely and relatively.

The number of our medical colleges gradually increased until in 1900 there were 151. Since then they have decreased in number to 128 and have been immensely improved in quality. There are about 5,000 fewer medical students than there were ten years ago. The number of physicians is still much higher than in European countries. It is about one to 2,000 of the population in Germany; it has been about one to 500 in the United States.

There is no doubt going to be a further decrease of students and graduates, for the community is waking to the fact that it must have really educated and well trained medical men, and these are expensive; besides, as I will presently show, disease and the mortality rate have been and are still steadily decreasing; and there will be less need of so many. It is obedience to the law of supply and demand.

The decrease of physicians will stop very likely before it gets to the German ratio, because we Americans like to be doctored, especially if it does not cost much. Perhaps we find also that the

American doctor is on the whole an important and useful citizen, more esteemed personally and ranking higher socially than in other countries. The people will not give up what they find to be a genuinely valuable thing.

As the number of doctors is decreasing, it would be reasonable to infer that those left will have more to do and will be in a better economic position. This will be to some extent the case. There are, however, some disturbing factors in the economic adjustment. One of these is, that charlatanism thrives. It seems to be a kind of immortal fungus that clings to every plane of civilization. Then there are the patent medicines and the drug counter practice; and there are the various obsessive and commercial cults of medicine. There are about 5,000 Christian Scientists and 5,000 osteopaths, besides chiropractics and other fancy breeds of modern healing. These perhaps hurt honest art for a time, but not eventually. Fooling with disease brings disaster in the end, and Christian Science is one of the doctor's best economic assets. But there is another feature to consider. In the last thirty years the death rate has dropped from ten to fourteen points, i. e., it is one third to one half as great as it was thirty years ago. Incidentally, let me say that the fact of this simultaneous decrease in death rate and in doctors should not be seized upon by the misiatric press as a phenomenon of cause and effect. It is not the case, because the decrease in physicians began only five years ago, while the death rate has been falling steadily since 1880.

Together with this decrease in sickness and mortality there have developed certain forces which are acting with ever increasing energy. They are the fuller knowledge of personal hygiene, which people possess, and the organization of agencies to control disease and promote health, by private societies, by cities, States, and the Federal Government. These all now combine to form a powerful and irresistible force for the diminution of disease and the uplifting of the physical well being of the race.

In order to avoid the depressing effect of reading statistics, I have had a table prepared which shows some of the conditions and activities at the present time, as just indicated.

	TABLE: Showing				
	A. Educated medical activities.				
	B. Noneducated, and outside medical activities.				
	C. Population.				
	D. Mortality rate.				
	1880.	1890.	1900.	1910.	1912.
A. Medical students...	11,826	15,404	25,171	21,526	18,412
Medical graduates...	3,241	4,454	5,214	4,440	4,483
Medical colleges	90	116	151	133	116
Physicians	85,671	104,805	132,002	131,622	.....

*Address at the Anniversary Meeting of the New York Academy of Medicine, November 27, 1912.

	1880.	1890.	1900.	1910.
B. Nurses	15,601	47,586	120,956	*200,000
Midwives	*1,000	.....	.....	5,000
Christian Scientists ..	.....	.....	.....	5,300
Osteopaths .....	.....	.....	.....	5,000
Druggists	*25,000	?	.....	75,000
C. Population	50,155,783	62,947,714	75,994,575	91,972,266
D. Mortality rate per	.....	.....	.....	.....
1,000 per annum....	25 ¹	.....	.....	15

¹Approximate.

This, then, is the situation before us, a sure decline in the numbers of medical men, and a sure increase in the quality and equipment of medical men; a more enlightened community in respect to the laws of health and the prevention of disease, and in consequence a steadily diminishing mortality and sickness-rate.

Along with these obvious things, then, is developing already a change in our methods of treatment. Drugs will be given more, but more wisely, and they will not be exactly drugs, but chemical and mental foods, the glandular extracts and the immunizing and protective sera. We will surely make more cures than have been made in older times, and thus there will be shorter periods of illness.

There is a definite tendency also to a larger use of institutional and colonization treatment of certain classes of the chronically sick. But the most important of any single agency in modifying the doctor's future will be the adoption of some kind of State medical insurance for the working classes, on which subject Doctor Bristow will speak.

THE PROPER MEDICAL ATTITUDE AND POLICY.

Now, this situation, which certainly merits attention, is one for which the medical profession more than any other body is responsible. From the time of Hippocrates every great name in medicine has been identified with some work in hygiene. This kind of work is the finest jewel in the medical crown, and some day, no doubt, mankind will pay a tribute to an altruism which is perhaps forced upon us by the demands of sympathy and the impulses of enlightenment, but is nevertheless a very honorable thing.

We, having been so instrumental in starting these forces for our own apparent submergence, can by no possibility now draw back or change our attitude. The doctor of the present and of the future must take hold and help the movement still more. This is his necessity. If he does not he will be justly held the enemy of his kind. But it is also wise. Any improvement in the social and economic condition of the doctor of the future can be secured only by continuing to lead and guide the struggle for hygienic progress. By this he will be made a more important man in the community; he will be called into public as well as private affairs. And as one who can manage the health of a nation, or of a community, he has a greater function than is that of prescribing for an individual. Medicine will become a part of statecraft; doctors will direct affairs more, and lawyers less—I hope. So we need not feel alarm for the doctor of the future; the progress of prophylaxis is going to be very slow, probably now slower than ever. Besides, he may if he wishes, take hope that new diseases may spring up; that the conservation of so much life will increase the numbers of the feeble, of the chronic invalid and the presenile. The duration of life has been prolonged from thirty-five to forty-five years, and

it can be made to reach fifty-five. This long middle age may be dolorous to those saved for it, but economically helpful to the doctor, at least, until eugenics arrives.

Meanwhile, we are all not to leave our clinics and plunge into a crusade. The ideal hygienic state is a long way ahead. The doctor can show active sympathy, he can render assistance by daily personal teaching and by the evincing of a genuine public spirit.

His cue is also, in so far as possible and wise, to oppose institutionalism. We do not want to become as a profession lodge doctors, government doctors, institutional doctors. There must be opportunity for high individual effort, there must be opportunity for talent to rise, and genius to reach its proper level. We cannot conceive of this if we are a body of civil servants at so much per annum. But this is the trend and we must help to guide it wisely.

I do not expect that I shall arouse at once a general and active zeal in our work of prophylaxis. We appear, though we are not, to be committing by such proposed activity for public health an honorable hari-kari and the operation is one that achieves merit but arouses only sporadic enthusiasm. As individuals doctors contribute immensely to hygiene, as a body they do not flock to public health discourses and discussions. But it is sufficient if they give their individual help and their cooperative approval, that they suggest and advise and do their indispensable share of the work.

SPECIFIC PROPHECIES; MEDICAL EDUCATION.

But let me now, having prophesied and exhorted on a general theme, lay out a horoscope for some particular conditions. It goes without saying that our medical colleges will steadily improve and be brought up to uniform conditions. This change is already rapidly taking place. I venture to predict that our institutions for graduate study will be placed also under regent's or some equivalent State control. In this way the doctor who comes for post-graduate study will be obliged to show some qualifications for the work. And on the other hand the kind of and amount of teaching will be supervised so that he will be compelled to do definite tasks and will receive adequate courses of instruction. The day of the casual teaching of medicine will pass, or else my vision is a hallucinosis.

The greater hospitals and all the really great hospitals will become allied with universities or teaching bodies. The hospitals will be used to cure the sick and also to teach the growing generation how to cure. They already have as adjunct forces well equipped laboratories, but there will develop also a new factor, a thoroughly organized system of social service. This social work will be recognized as part of the hospital and outpatient system, one quite as important in a way as the medical work proper. By it the efficiency of the hospital will be increased, its admissions controlled and those discharged receive proper aftercare. Here, too, will be a rich field for trained workers and assistants to us, the children of Apollo.

The hospitals will be under the medical direction of fewer doctors. They will give to them a definite part of their time and will I hope be paid for such service. They will have many assistants and asso-

ciates who will be trained to be hospital men. But I doubt if we adopt in this country the German method altogether. The American physician is too much of an individualist to become an institutional man,—at least, this is not his highest ideal or ambition. There are things to be learnt by contact with the world which make for medical skill more than do laboratories, and besides, the best of the doctors of the future are needed also in the community at large. The poor and indigent have no right to *all* of our best energies, and some must be given to the home and the invalid in his own environment. People will continue to get well in their own houses and to adjust their lives so that they will stay well amidst the environment in which the duties of their lives are to be carried out. Still there is already a growing hospital habit.

THE OLD FASHIONED GENERAL PRACTITIONER.

There has been much said about the disappearance of the old fashioned family physician and general practitioner. He was a splendid figure and useful person in his day; but he was badly trained, he was often ignorant, he made many mistakes, for one cannot by force of character and geniality of person make a diagnosis of appendicitis, or recognize a streptococcus infection. I think the ill educated old family doctor, idealized perhaps less by our memories than in our story books, is going, and it is a good riddance.

THE NEW TYPE.

There is going to be and there is already developing a general practitioner of a higher type. Soundly educated at the start, he is trained in college and hospital and laboratory until he knows the human body. He has had enough contact with special medicine and surgery to recognize rare as well as common diseases, and he knows, if he is a real man, that he has his limitations. He can be also of the human and benignant type; though there he has yet to grow. This new practitioner, the internist,—will be vastly safer and more useful not only as a doctor but as a member of the community. That is he can be such. Here is where my prophecy limps, my hope and belief begin. Always there must be honesty, of work and purpose, or all will fail.

This new type of family doctor is not going to be swept aside by groups of specialists. These latter will but adorn and enrich his progress. With the mellowing years the specialist will either creep into a little narrower, more difficult, perhaps sometimes more brilliant niche, or his line of work become so small that he will disappear. Every year the real creative specialist organizes his knowledge, puts it into a practical form, and turns this and his inventions and discoveries over to general medicine and surgery. He tills his little field. The internist gathers in a tithe of the crop and encroaches a little more upon the specialist's working ground. So I see the practitioner of internal medicine, the staliest figure in the procession of our successors who fill the prophetic vision.

So much for the medical side. It is very obvious already that the surgeon of the large centres is going to become not exactly a specialist but more and more specialized. There will be those who devote themselves more particularly to the different organs and systems of the body from brain to bones.

This is a wise and proper tendency, and will secure for the community better technical work and in the end a more conservative attitude to the patient. All over the country there will be small hospitals where the general practitioner and surgeon will do the traumatic and emergency work. But he will, I believe, learn to recognize his limitations and that to remove a tumor from the brain, to deal with an aneurysm, or a serious chest or abdominal condition means years of special practice and experience. And I am hoping that as the surgeon learns to take a keener range of view he will become perhaps, if I may say it, a little less appropriative, objective, and technical, less amazed at his own resources, more thoughtful, sympathetic, and, touched finally by an awakening of social consciousness, become beloved for the things he will not do, as well as for what he does.

MEDICAL WOMEN.

It is with timid and uncertain note, that I utter a vaticination concerning medical women. Who is going to measure the possibilities of woman's intellectual and economic achievements now that the shackles are dropping from her enticing but long enslaved person? However, we have data regarding the past. These show that women physicians have been decreasing in numbers, more proportionately than men, in late years. They have done good but not much brilliant or constructive work. They have so to speak "made good"; they have shown that there is a distinct field for them and so there will continue a supply of women physicians. Their best work has been done and probably will be done in laboratories and as institutional physicians, where they fill a genuine need. But women physicians have also been quick to see the need of social reforms and the value of preventive medicine and have proved themselves eager to work for its promotion. The woman doctor of the future will achieve perhaps her great results in these fields and in all the lines that lead to social betterment.

SCHOOL DOCTORS.

The doctor of the future will be a schoolhouse doctor. Every school board or authority which controls the education of children in a town or city will have its bureau of child hygiene and the doctor will watch over the methods of education of the child, examine and sort out the sick and unfit and prevent the tremendous waste that comes from forcing the retarded or handicapped into the same lines of work as those of sound and well balanced physique.

The doctor will make the teacher's work easier,—and the neurasthenia of school teachers fills sad pages in my history books. He will make the teacher's work better. He will be very useful, very expensive, but much beloved, whereas now, I may say *quoad* the school, he is none of these things.

DOCTORS AND MARRIAGE.

The doctor of the future will not marry,—I mean he will not be the official who performs this function. But he is going to be a person whom lovesick maids and men will have to take seriously into account. He will not approve of the love story that makes the best seller.

The earlier flames of love are often a form of attraction or a phase of cohesion which would prob-

ably be classed by biologists as a gynotropism or androtropism (like "the desire of the moth for the star"). The phenomena are most interesting, but not necessarily racially valuable. Love is sometimes only an obsession; in all cases it needs a coefficient in the sobriety of a well composed germ plasm. Really even the truest love cannot make a family happy which has damaged goods as the parental product. So the doctor of the future will appear in all true and realistic love stories. He will also perhaps mitigate the climaxes, and even lessen the triangular banalities of the drama. "Eugenics driving Cupid" or "Venus at the feet of Æsculapius" will make future masterpieces for the mural decorations of the National Hall of Health. But this is so very far ahead that I feel I am getting into the fringe of cloudland.

THE DOCTOR AND ECONOMICS.

I would like to inject a word regarding the so to say personal economics of the future medical man. We hear criticisms of the doctor's—and especially of the surgeon's fees, and we are told that the present sliding scale of charging is wrong. We are told that, like Robin Hood, we rob the rich to pay the poor.

The present methods of paying for medical service will no doubt be somewhat changed. A practice already exists in Germany by which the head of a family engages the services of his family doctor for a certain definite sum per year. There are conditions in which this plan may be a good one and it will obtain some supporters. The plan of medical insurance for the working man in some form should and will, Doctor Bristow believes, also be developed, and the need of sparing the poor will be lessened. There will be a larger number of institutional and salaried physicians. Still the present custom of paying a fee will also continue and largely prevail. People want to choose their advisers as they need them; and special talent will always command special prices as it does in other arts and professions. Meanwhile it must be said that the present "sliding scale" is by no means a widespread or general thing. The vast number of practising physicians the country over get just about the same amounts a visit day by day. Furthermore, while there are individual cases of extortion, these are only exceptions. There is no real amount of what may be called "graft" or dishonesty in the profession here. The system in vogue cannot be radically bad for the sick or economically bad for the community, because doctors rarely get rich and never get wealthy through their practice. Doctor Bristow states that perhaps ten to twenty per cent. of physicians may be called prosperous. The rest just get a living or less. I hope the doctor of the future will give better service and charge more for it. After all health is man's best asset, and a life is sometimes worth more than the highest professional fee—whether architect's, lawyer's, or doctor's.

PUBLICITY MEDICAL COUNCILS.

The profession of medicine is a very personal kind of occupation, dealing intimately and confidentially with the lives of people. Our "business" is in a degree a private affair, and hence perhaps the

disposition of the profession as a whole not to take the public and press easily into its confidence. It is often difficult or impossible to make the laity get at our point of view.

The profession, however, owes it to the public to give salutary information and advice on matters pertaining to public health, the prevention of diseases, and also something of its aims, its accomplishments, and ideals.

There should be and will be some kind of authoritative body in all large communities which should act as intermediary between the public and the medical profession, a body which should advise, inform, interpret, warn, defend, and if necessary apologize. When medical or sanitary questions of public interest and importance arise, such bodies should be called on to speak, instead of individual doctors. This kind of interpretative and educational work is done now to an extent, by medical journals, through the resolutions of medical societies and the official health boards. But this is not definite or always authoritative enough. There is need of, and there will develop more personal representative and authoritative councils.

The New York Academy of Medicine has a Council and committee which will, it is hoped, in time amply fulfil this function of a Publicity Medical Council; and I trust the method will grow with the coming years.

DOCTOR AND STATE.

In an organized and still more intensive way than now, the doctor and the State will look after the food supply, the water supply, the cleanliness of towns and homes, and the proper disposal of their waste. He will indirectly help in seeing that workers are protected from the effects of too long hours, bad sanitary conditions, dangerous trades, and the accidents incurred in this work.

I hope he will help the poor as well as those not poor to have better means for recreation. The wise employment of the leisure hours is sadly needed for men and still more for women. The most people get ill during leisure hours. Work is healthful; leisure is the dangerous time.¹ This sentiment was immortalized by the poet of holy memory, Watts, but sometimes the sentiment that is immortal makes no impression. A healthy nation is wise and liberal in its recreations,—if there are none it is better to go back to work. I would like to see the recreation doctor, the play doctor, loom large in the future.

All these lines of activity are being carried on now in a way, but the people do not yet impose due emphasis upon them; the work is perhaps too obvious and undramatic. How sensible, how important, and how relatively easy it would be to accept and adopt the principles of hygiene as the leading things for a community and a party to interest itself in.

We worry and talk and quarrel over tariffs and the high price of living, big trusts, and armored cruisers. We dig canals, erect high buildings, and

¹The poor of New York play in 12,500 saloons, 800 dance halls, and 600 motion picture shows. Into them they pour \$70,000,000 a year. We arrest one person out of every twenty-nine each year. We spend \$21,457,000 on policing and protection, and only \$650,000 on recreation for the poor.

build long railroads, and proclaim the tremendous need of being progressive—this is very fine. But we can really do without so much transportation and bigger business. We do not need progress so much as we do wisdom—a sense of proportion. Why need we put the greatest emphasis in life on having more railroads and factories, more populous towns, and more extensive export trade? All this brings simply more hungry people to our shores to reap the advantages and multiply our social problems, obliging us to do the work all over of providing for more and more business. If a company makes a million it must double its plant and make two. If one store does well, there must be a chain of stores. This is the dominant note and compelling force of our country.

But we say, we the doctors of the future: Take to your hearts a saner policy and warm your souls with more useful fires; guard the child, bring it up to be healthy and morally sound; guard the home and the individual so that he will not be fed on poisons, or live in foul conditions; keep the community from disease, from insanity, weakmindedness, depravity, infections, poisons; make them breed healthy children and live long, sane and healthy lives; also keep the commandments. And remember, greed and dishonesty will spoil every one of my visions.

This is our point of view, and in promoting it the doctor of the future will, I am sure, win for himself a place higher in the hearts of the individual than he does to-day, or than any group of workers ever has done from the dawn of time.

Two thousand years ago a Roman poet prayed to "the gods who love the sevenfold hills of Rome." We should like to predict that the doctor yet to be may help to bring about for us that state of things for which this poet eloquently sang:

Ye gods! if Rome be yours: to placid age
Give timely rest, to docile youth
Grant the rich heritage
Of morals, modesty, and truth
On Rome herself bestow a teeming race,
Wealth, Empire, faith, and all befitting grace.

53 EAST FIFTY-THIRD STREET.

NATIONAL MEDICAL INSURANCE AS AFFECTING THE FUTURE OF THE DOCTOR.*

By A. T. BRISTOW, M. D.,
New York.

The medical profession has for years been trying the impossible experiment of getting blood out of a stone. It is very much astonished at its failure to accomplish the transfusion. It has blamed the superabundance of hospitals, dispensaries, and the numerous undoubted abuses of these public charities for the sterility of its experiment. It has never seemed to occur to us that we have been endeavoring to accomplish the impossible. We have passed all sorts of wise and futile resolutions against all sorts of economic conditions, which have sprung

from causes quite beyond our control, and then we have stood around in open mouthed wonder at our failure to accomplish a miracle.

The science of medicine differs from the other learned professions in this respect, that it is a necessity to the public. It may, it is true, become a luxury to the rich, especially when the high priced specialist sends in his bill, but medicine is a necessity to the poor man. He can die without the intervention of the clergy. This I say with humble apologies to the cloth. As he has little property, the lawyer has no interest in him. If, however, he falls ill of pneumonia or any other of the ills which escaped from Pandora's box, the doctor is a necessity. He cannot even die without a doctor, except with the kind assistance of the coroner. The service of the medical man is, therefore, compulsory on both sides, a fact not to be lost sight of in considering the problems which surround and embarrass the future of the doctor.

If our prospective patients averaged incomes as high as \$2,500 per annum our financial problems would be relatively easy and there would be no dispensary problems, no lodge nor contract practice; but the fact is that the income of the average citizen and wage earner is far below this sum. It is almost impossible to get any statistics which would even approximate accuracy, since in this country we have no income tax, but it must be evident to the careful observer that the great army of clerks, bookkeepers, small tradesmen, small manufacturers, artisans, factory hands, and farmers engaged in cultivating holdings under 200 acres will not average even \$1,500 a year. Add to this the immense army of unskilled labor and the average income will be pulled down below \$1,000. This average will not be much increased by the united income of millionaires, and the well-to-do with incomes of from \$5,000 per annum upward.

The Macmillan Company published a work last spring entitled *Wages in the United States*. The author, Scott Nearing, Ph. D., having made an investigation of the annual income of adult males in the United States, finds that ninety per cent. earn less than \$800, seventy-five per cent. less than \$600, and fully fifty per cent. less than \$500 per annum. Nearing says that twenty per cent. earn as low as \$200 per annum. Professor Chapin's estimate of the sum necessary in New York for a man, wife, and three children to maintain a normal standard of living is \$900 per annum. More recently, Mr. John A. Kingsbury, general agent of the New York Association for Improving the Condition of the Poor, says that at present \$1,200 is essential to the maintenance of a normal standard. This seems to be nearer the truth than Professor Chapin's estimate. He further states: "An income of \$900 a year, as indicated by our investigations, will provide only the minimum of nourishment and comfort and will not meet any extra demands that may at any time be made on the family. A family living on such an income in New York must economize in every way, especially in clothing, and must depend upon free dispensaries in times of sickness." How many families have incomes as low as \$900 per annum? Mr. Kingsbury states that in the tall office buildings, the employees classified as elevator men, hall

*Address delivered at the Anniversary Exercises of the New York Academy of Medicine, November 21, 1912.

men, watchmen, firemen, porters, and general utility men averaged from \$10 to \$15 a week. In the *Evening Sun* for November 16, 1912, appeared an announcement that the street cleaners were dissatisfied with their annual wage of \$780 per annum, both on account of the high cost of living and because the expenses of uniforms, rubber boots, implements of their work, and the like averaged \$125 per annum, leaving them but \$655 to support their families.

Again, consider the wages of the mill worker at Lawrence. Investigation showed that the beneficent Schedule K produced for these people the most meagre returns. Men and women do not riot on full stomachs. It is the lean belly that rebels. What is to happen to all this multitude when sickness comes? It is not difficult to make answer. We must also remember that it is not the people with comfortable incomes who rejoice, or otherwise, in large families. It is not on Fifth Avenue or Murray Hill that you will have to pick your steps to avoid running into children. Compare a photograph of Rivington Street at midday with one of any of the fashionable residential streets and note the difference. The smaller the income the larger the family.

Another matter worthy of consideration is the fact that the fixed charges of living bear a steadily increasing ratio to the total income in inverse proportion to its size. A man with an income of \$5,000 a year will not greatly suffer if his income is cut down by sickness as much as twenty per cent., yet that would be a percentage which would mean privation to the wage earner of \$1,000 a year and would come dangerously near semistarvation to the street cleaner with his present income of \$780 per annum, less his overhead expenses of \$125 for essentials necessary to his occupation.

It is also to be noted that when any of these wage earners of the class we are considering is laid up with sickness, pneumonia, it may be, or typhoid fever or the white plague, his little income immediately stops, and if he has any savings laid up in the savings bank, these dwindle like snow before a hot sun, and soon the pawnbroker is his banker at the expense of his poor household gods, gods no longer, but poor broken clay to stop the cracks through which the biting bitter wind of poverty is blowing.

The fact is that the vast majority of city dwellers have the narrowest possible margin between their fixed charges and their total incomes, and the same is true of the dwellers on the land, with this difference, that for them it is possible to live off the soil, at least in favorable years, so they are not quite as badly off in time of sickness as the dweller in the large city whose income stops when he takes to his bed, and who has no farm products stored in his cellar to feed hungry mouths.

What has been the result of this state of affairs so far as the people are concerned? They have flocked to the free dispensaries. They have filled the hospital wards and have become pauperized, not from choice but necessity. What else was there to do. Needs must, when the Devil drives.

What has been the result of this play of cause and effect on the medical profession? A few men

with wealthy and fashionable clients have grown rich. A somewhat larger proportion, with clients of the well-to-do middle class and those of moderate but adequate means, have made comfortable though not large incomes; but the vast majority of medical men are as poor as their patients. When I have said this in public before, my critics have reminded me of the automobiles which line the street for a block at our medical meetings in Brooklyn. They, however, forget that of the total census of doctors in Kings County, less than half are in the county society, and of these never more than twenty per cent. ever attend the meetings, and the average is less than that. The attendance at the meetings of the State society is less than seven per cent.; of the American Medical Association, between ten and fifteen per cent. This would, in my opinion, represent about the proportion of the fairly prosperous members of our profession.

What, then, is the condition which presents itself? On the one hand, we have the greatest number of our citizens with fixed charges almost equal to their incomes; for this reason they are unable to bear the financial strain of illness and disability combined, and are compelled to seek charity. On the other hand, we have a body of men whose education is the most costly of any of the learned professions who are compelled to contemplate with such calmness as may be, the curtailment of their incomes by the advances in prophylactic medicine, while not alone are their living expenses steadily increasing, but the cost of their education in both time and money.

The people need medical attention for which they are unable to pay the regular rates, and the medical profession needs some relief from the inroads which science and the State are making on the incomes of its members.

For a number of years in this country, and for a much longer period in Europe, the people have been combining in associations of sick benefit lodges in order to get medical attention which was within their means. I have already shown that with our present system of charges the doctor is a luxury quite beyond the means of the average citizen, unless we except very short illnesses.

Thus the resort to lodge and contract practice has been the answer of the class of citizens to which I have alluded, to the query, "How are we to get medical attendance in our homes when we need it?" I hear some one say that such people ought to go to the hospital. Such a solution of the problem does not help the finances of the medical man at all. Moreover, it would often involve domestic perplexity in the family of the sick person. It is not always feasible to lug the mother of a family of five or six children off to the hospital. Even though ill, she can exercise a certain amount of control and supervision over her family, whereas a sojourn in the hospital means that the children and the family management are dependent on the kind offices of neighbors. Fortunate is it that the poor are good to the poor, otherwise doubly unhappy would be their lot. It is not unnatural, therefore, that the poor man has endeavored to find some means of making his necessities fit together with his income.

Through the kindness of medical friends I am

enabled to give you some idea of the extent to which this lodge practice is carried, among the Italians and Hebrews. An Italian physician writes as follows:

There are over 275 mutual benefit societies in greater New York. This is exclusive of the Chapters of the order known as *Figli d'Italia* of which there are over forty-five in New York; also six or eight of the Foresters Order. The total membership of all these societies is over 75,000, paying a weekly benefit from five to twelve dollars with free medical service. The physicians of these societies are under regular contract at one dollar yearly for each active member and three dollars yearly for the whole family. In some cases there are as many as ten or twelve members in the family. A few societies pay \$1.25 for each member. A member is supposed to receive free medical services even when he is in arrears as much as three months with his dues, although other benefits are cut off. There are physicians who make a specialty of society work and attend as many as ten or more such organizations. In such cases, however, the physician is usually more conspicuous by his absence than by his attendance.

There are a good many of these societies which make contracts with drug stores for prescriptions at a reduced rate. These drug stores often belong to the society doctor and the charge for the prescription is far from being reduced.

Membership in these societies is not limited locally. Some have members living as far as fifteen miles away from the place of meeting and these members are entitled to free medical and surgical services. Some of these societies require the physician to do obstetric work at greatly reduced rates although obstetrics with the Italian is largely done by midwives.

From one of the high offices of the Federation of Jewish Orders comes the following information:

There are two thousand Jewish lodges in the State of New York, and these are divided approximately into three lodges to each physician engaged in this form of practice. This does not include small benevolent societies in the smaller towns of the State. In the city of New York there are about 500 physicians (Jewish) engaged in lodge practice. These 500 men get from one to two dollars a year to attend about 500 or 600 members; that is, they get paid so much a member a year. In addition, many of them must look after the members' families, consisting of wife and any number of children from two to eight in number. Some of the lodges pay the doctor one dollar extra a year for looking after the family of the member. The average number of calls made a day by men engaged in lodge practice is from ten to fifteen house calls, and they average at their office in office visits, from twenty to forty. This form of practice is not controlled by our medical societies, nor is there a form or code of ethics regarding the same. That the practice itself is poor, that the services rendered are second rate, is obvious from the amount of work at low pay which this lodge practice entails.

This is a mere sketch of the extent and methods of lodge and contract practice in New York State. It will readily be seen that in these two nationalities alone there are at least 300,000 members participating in the benefits of medical attendance at low rates. In making this calculation, I have figured the 2,000 Jewish lodges in New York State as having an average membership of 100. The fact is that the lodges in New York city exceed this amount many times over, so that the true figures would probably be nearer the half million mark. Nor is lodge practice in this country confined to these two nationalities. Many native Americans, in our rural districts particularly, belong to the Foresters, and there are countless other organizations with fanciful names and similar purposes.

Various county societies have at times issued pronouncements against these societies and have even threatened with expulsion any of their mem-

bers who were under contract to a lodge or benefit society. On a threat to bring a physician of Kings county before the council for lodge practice, the reply was made, "If it is a question between my wife and children and the county society, I shall choose my family every time." Nothing was done in this case. The reply seemed convincing. We have lodge practice with us. It is here to stay. Nothing that this body can do, nor the county society nor the State society, will change the situation one hair's breadth so far as the continued existence of these societies is concerned.

We have all of us, the writer included, condemned these benefit societies by wholesale, and this, I am afraid, without much real consideration of the circumstances which have brought them into being and made them prosperous. What, after all, is lodge practice from the standpoint of the people? It is nothing more than a system of medical insurance. The poor man realizes that there is no margin between his income and his fixed charges. He must have medical attendance. He and his have crowded our dispensaries, but the dispensary fails to care for the poor man in his home, so he has invoked the insurance principle, which is to-day, if not the cornerstone of our social system, at least a highly important part thereof. No one thinks it wrong to take out an accident policy, a liability policy, a sick benefit policy, or a life insurance policy in an old line company. Why should it be right and proper for the members of this academy to hold sick benefit policies and wrong for the poor man to do the same thing according to his needs and means? What is the difference between the two cases? Briefly, it is a difference of method. The old line company pays its beneficiaries a weekly indemnity for a specified time and the insured employs his own physician and pays him. There is no question that this is the better way, both for the patient and the physician. Is it possible to apply the same principle to the poor man? His policy, remember, must apply, not only to himself, but to his family. But an old line health policy alone used to cost \$35 per annum, and the companies now no longer write an exclusive health policy, but accident and health combined, for which the charge is \$60 per annum, restricted to one beneficiary. It must be evident to all fair minded men that any such insurance is an impossibility to the poor man. It is just as much out of his reach as a physician's attendance at rates of two dollars or even one dollar a visit for a continued illness. Is the poor man, therefore, to be debarred from taking advantage of the principle of insurance against sickness because the shallowness of his purse prevents his adopting the same methods of insurance of which many of us avail ourselves? Surely not, if we believe in social justice. It seems to me that we must concede that the principle of medical insurance is correct.

If, contrary to our beliefs and expressed opinions, we can bring ourselves with fair mindedness to admit the necessity of medical insurance for the large mass of our people, I believe we shall have taken a long step in the direction of the solution of the problems which have been vexing us. The people need our help, but we have persisted in holding our services at prices which are prohibitory. It

is my opinion that the future of the doctor is going to be largely influenced by the view which we as medical men take of medical insurance. We can either recognize facts as they are and meet them with advantage to ourselves as well as the people whom we serve, or we may blindly shut our eyes to the facts and cry that it is unethical to attend the poor man for a price within his means. Do not deceive yourselves. We must reckon with this principle of insurance against sickness. When the English government incorporates the principle into law and creates a system of national insurance against sickness we may be certain that ultimately the same principle will gain State recognition in this country.

The British Medical Association will fight in vain against the English government, except in the matter of details. It has succeeded already in securing concessions by way of increase of the per capita payments to the amount of fifty per cent. I beg those of you who are interested in this most important subject to read the supplements to the *British Medical Journal* entitled National Insurance, which have been appearing through the current year. All phases of this question are discussed with elaboration and fairness. The British Medical Association is setting our own organizations a magnificent example of what it is possible to accomplish by loyalty and unanimity of purpose when the interests of the medical profession are involved.

We must then recognize, at least so it seems to me, that the principle of medical insurance is correct. What the medical profession must accomplish is a reform in the methods of administration.

I am perfectly willing to concede all that may be said concerning the abuses of lodge practice. They are manifold and are unfair not alone to the medical man but retroactive on the beneficiaries of the system.

It ought to be possible so to reform these methods as to make the system a real blessing to the common people and productive of an honorable remuneration to the medical man. A full consideration of this part of my subject would require more time than could possibly be available here. Nevertheless, an abstract of the resolutions passed at various meetings of sections of the British Medical Association will serve to give direction to our thoughts. There should be:

1. An income limit (put at \$10 a week in England).
2. Free choice of doctor by patient, subject to consent of doctor to act. (It is premised that the doctor is one of those under contract.)
3. Medical and maternity benefits to be administered by local health committees and not by friendly societies. (That is to say, the medical profession is to be in control—not the lodges.)
4. Medical remuneration to be what the profession considers adequate, (8s. 6d. in England).
5. The method of remuneration of medical practitioners adopted by each local health committee to be according to the preference of the majority of the medical profession in that locality.

The most important points in these resolutions are the income limit, the choice of doctor, and the passing of the control of the insurance from the hands of the friendly societies to the doctors.

This is in accordance with sound economic principles. No insurance company could exist for a

year if its rates were determined by the insured. These are subject to the calculation of the actuaries and somewhat similar methods would have to be adopted in any scheme of State or National insurance.

CONCLUSION.

A system of national or State medical insurance may be the solution of some of the problems which confront us, both as citizens and medical men. The principle of insurance, with proper limitations, seems to be sound. Some method of providing medical attendance for the people will have to be devised which takes cognizance of their necessities.

Of one thing we may be sure. The medical profession will never shirk its responsibilities and will ever consent to suffer wrong rather than withhold a helping hand. The motto of this academy was not inscribed on its great seal in vain:

*Homines Deos Accedunt Hominibus Dando
Salutem.*

234 CLINTON STREET, BROOKLYN.

CANCER OF THE UTERUS.*

Which Is the Preferable Operation?

By H. J. BOLDT, M. D.,
New York.

There is no subject in gynecological surgery that has received more attention from leading gynecologists the world over than that which I now purpose, without statistical citations, to place before you for consideration.

I believe that all gynecological surgeons are agreed that the vaginal extirpation of a carcinomatous uterus, particularly by the method generally used, gives a much lower primary mortality than the extensive abdominal operation. But we are also agreed, that when the disease has its origin in the cervix, even though it is still in seemingly the beginning stage (the early stage of epithelioma of the *vaginal portion* of the cervix is not included), the percentage of recurrence is very large. Then, as to ultimate cure—that is, no recurrence within five years after operation—we should bear in mind that a question sometimes arises whether a particular specimen that was submitted for microscopical examination was really carcinoma. Such differences of opinion among pathologists even of good reputation are not unusual. Such questions, however, arise only over specimens that present atypical features under the microscope. Just as numerous instances of reported benign conditions proving subsequently malignant are known to us, so the reverse is not infrequent.

But even at this time there is no unanimity of opinion as to which is the best technic or the best method to follow when operating for cancer of the uterus.

My old friend, Hofrat Professor Schauta, told me, during the past summer, that with the technic of vaginal hysterectomy devised by him, and practised in his clinic, the ultimate results are equal to

*Read at the meeting of the Southern Surgical and Gynecological Society at Old Point Comfort, Va., December 18, 1912.

those of his confrère, Professor Wertheim, of the second gynecological clinic at Vienna; whereas the primary results are far superior. In that clinic, it is true, the chief and his assistants, particularly Doctor Cristofolletti, are artists and masters of the technic, and, undoubtedly, any one who has seen the work there will acquiesce in the assertion that the parametria are more extensively removed by them than is generally done in vaginal hysterectomies. This is, in my opinion, the only proper method of doing a vaginal hysterectomy for cancer of the uterus. And while I myself have done vaginal hysterectomies somewhat similarly, I did not remove the parametria so extensively as do Schauta and his pupils. The features of importance are these: An extensive paravaginal section must be made; and it should extend about two to three cm. behind the anus. The vaginal cuff, which is next made, takes as much of the upper part of the vagina as is thought to be necessary—usually the upper third. By such an extensive paravaginal section, one makes for oneself an adequate approach to the field of work. The bladder must be well pushed off, particular care being given to the lateral attachments, so that the ureters can be fully exposed to permit tying the uterine artery outside of them. Only in this way can we get the parametria free enough to extirpate extensively.

But does that method really permit one to do as satisfactory an operation as the abdominal route? Formerly I thought that it did; but in spite of what Schauta asserts for it, despite indeed the excellent ultimate and primary results, I would limit its field of application to women who are very obese; to the very early stages of epithelioma of the vaginal part of the cervix; and to cancer of the body of the uterus. But particularly would I give preference to the vaginal operation in the varieties mentioned, should the patient's age be past fifty years, since at that age, and beyond it, the disease is not so likely to have affected the glands. Although I included early epithelioma of the *portio vaginalis* as an indication for vaginal hysterectomy, still, if the condition of the patient is in every way favorable, the abdominal route is, I believe, the more desirable.

The abdominal route undoubtedly does permit the parametria to be extirpated more extensively. Moreover, one has a better view of the field of work, and enlarged glands may be extirpated. While careful investigation has proved that the glands are but rarely affected in still operable instances of carcinoma of the uterus, nevertheless I myself have seen a carcinomatous gland at the iliac bifurcation in an early and easily operable case.

The fact that there are on record several cases of women still living without recurrence after five years from whom carcinomatous glands were removed, is, it seems to me, sufficient argument in favor of the abdominal operation, if done radically. But an abdominal operation, to be of value for the cure of the disease, must be extensive. It must be really a radical operation, and not only called a radical operation. The simple exposure of the ureters when operating, and otherwise doing no more than an ordinary panhysterectomy, is not technic that will give one iota better remote re-

sults than would that which was employed twenty-five or thirty years ago.

When doing the operation we must see that we have free access to the field of work; and the abdominal incision must be sufficiently extensive to permit this. Of the different kinds of incisions used to open the abdomen, none gives better nor, it seems to me, equally good access, as the transverse incision employed by Mackenrodt, of Berlin. It differs from the ordinary transverse incision, usually called the Pfannenstiel incision, in that the recti muscles are cut close to their bony attachment, instead of only cutting the fascia transversely and then separating the muscles lengthwise, as in the old and generally practised abdominal section.

The next and a most important point, is: Control all bleeding. This should be done as one proceeds with the operation. It is impossible to work in the pelvis without great danger of injuring the ureters unless one can work in a field free of blood. The parametria must be excised extensively, and any enlarged glands should be removed. There should be no oozing anywhere. The field must be dry before the pelvic peritoneum is closed over the raw surface. The question of pelvic drainage after such operations is still a moot point. The greater number of surgeons make use of it; I do not see the necessity if the precaution has been taken to control even the slightest oozing, and if one has done clean work.

It must, I believe, be obvious, that with the exceptions mentioned, the abdominal extirpation, done radically, should be the method of choice. And to better the primary results the employment of lumbar analgesia should find preference.

39 EAST SIXTY-FIRST STREET.

A CONTRIBUTION TO THE STUDY OF APHASIA.

BY ALFRED GORDON, M. D.,
Philadelphia.

For a period of over forty years, the doctrine concerning motor aphasia reigned without being contested and thus became classical. Although Broca, in his original and subsequent presentations of the subject, was invariably exceedingly careful as to the exact localization of aphasia, nevertheless the observers that followed him, in the spirit of enthusiasm deviated from his doctrine and became too absolute in their interpretations of it. In his first clinicoanatomical case presented before the Anthropological Society, April 18, 1861, Broca observed that a softening involved the largest part of the frontal lobe in the left hemisphere. A few years later, after having accumulated a large number of pathological data, he expressed himself as follows: "Among so many diverse lesions, it is difficult to discover the one that produces aphasia, as almost always several convolutions are found diseased. However, one is authorized by exclusion to assume that the seat of aphasic lesion is in the third frontal convolution. At the same time it must also be admitted that the intensity of a lesion of this convo-

lution is not always in direct relation to the alteration of the language. One sees, for example, a lesion of eight or ten mm. produce an almost complete loss of speech, while in other cases lesions ten times greater cause a very slight alteration of articulate speech."

As to the individual features of motor aphasia or aphemia Broca defines it thus: "The patient's intelligence remains intact, the phonation is easy, the tongue and lips produce normal movements, and still the speech is reduced to a limited number of articulated sounds, the entire vocabulary is composed of a brief series of syllables or sometimes of a monosyllable, or else there is no vestige of articulated language. The inner language is always preserved."

The difficulty of a precise localization did not escape Broca. Several years later he insisted that the insula and the lenticular nucleus are almost always involved together with the third frontal convolution. It is therefore evident that Broca himself was very cautious in his endeavors to localize aphemia. The discovery was so attractive to the investigators who followed him, that in their enthusiasm they departed from Broca's own views and accepted the third frontal convolution as the exclusive seat of motor aphasia. This exclusivism continued to exist in its entirety up to 1906, when Marie first dared challenge the scientific accuracy of the generally adapted doctrine, which up to his time had been considered incontrovertible and therefore classical.

Marie's formula is now universally familiar and too well known to dwell upon. His assertion is that Broca's aphasia is anarthria plus aphasia. Etymologically, anarthria consists of an impossibility or difficulty of articulating words; this is the former pure or subcortical motor aphasia. An anarthric understands, reads, and writes. His thoughts are intact, he can express himself by any other means except speech; his inner language is not altered. The aphasia itself is, according to Marie, the Wernicke's aphasia which, as is well known, is characterized by a disturbance of the inner language. There is but one aphasia that is an intrinsic aphasia, and that is Wernicke's aphasia. All aphasics present invariably an intellectual deficit, which may vary from a simple slowness of normal functions to a total suppression of all the faculties. The old Broca's aphasia is a mixed aphasia composed in various degrees of anarthria and of disturbances in the inner language.

Anatomically, according to Marie, the third frontal convolution may and may not be found involved in cases of aphasia, but it plays no part whatever in the function of language. The real lesion is found simultaneously in Wernicke's zone, and in the lenticular zone, so designated by Marie.

It is evident, and subsequent events proved it, that similarly to Broca, and more so to his followers, Marie himself entered a field of exclusivism. Numerous facts are gradually being brought to light which make one hesitate to accept the new conception of aphasia *in toto*. As in the case of the classical doctrine, the new one possesses certain features which are debatable and contestable, but an impartial appreciation of the acceptable and

inacceptable elements of both can be decided only by carefully gathered clinicoanatomical observations.

As a modest contribution to this important subject the following three cases are offered for consideration. It will be seen that they are only an additional proof of the chaos into which the problem of aphasia has been thrown since its revision in 1906.

CASE I. An Italian boy, sixteen years old, right handed, suffered for a period of six months before he died from headache, vomiting, and gradual loss of sight. At the time of the examination, viz., two weeks before death, the following symptoms were found: The gait was ataxic with a tendency to walk toward the left side. Besides, asynergia, characteristic of cerebellar diseases, was distinct: the trunk did not follow the forward projection of the legs while walking and if not supported the boy would fall backward and to the left. The knee jerks and Achilles tendon reflexes were abolished on both sides. Babinski was present on the right and doubtful on the left. The

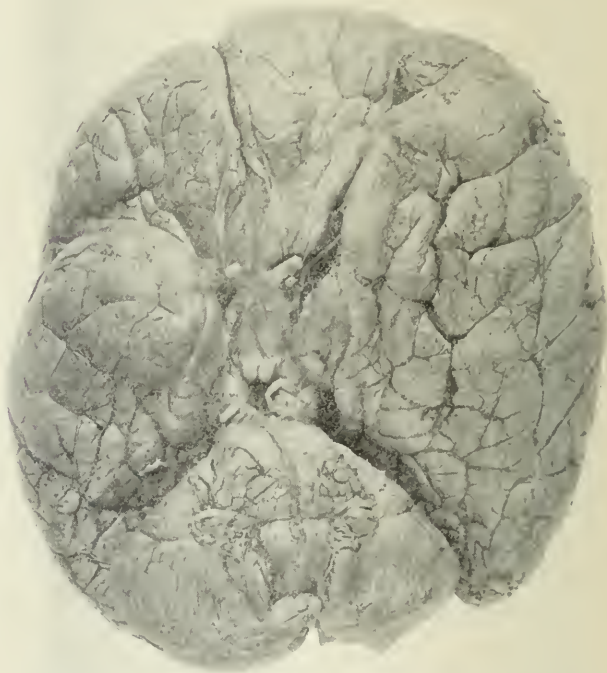


FIG. 1.—Base of brain. Tumor seen between temporal and orbital lobes in left hemisphere. The temporal lobe is very large and flattened (Case I).

paradoxical sign was present on both sides. The grip of both hands was equal and normal. The face was slightly deviated to the left. Sensations were slightly diminished on the entire right side to all three forms, touch, pain, and temperature. There was no astereognosis, no asymbolia, nor any other disturbance of the deep sensibilities, such as pressure position on both sides. The hearing on the right side was markedly deficient. Smell and taste were normal.

The eyes presented the following condition (report of Dr. G. Friebs): Vision in both eyes is absolutely nil: there is an entire absence of light perception and of light projection. Pupils dilated *ad maximum*, indicating complete paralysis of accommodation. Partial paralysis of the extrinsic muscles of both eyes with decided proptosis. The ophthalmoscope reveals a very high degree of papillitis or choked discs equalling 6 D in each eye.

The patient's speech was somewhat slow, but perfectly distinct as to pronunciation of letters, syllables, and words. He understood what was said to him and to each question he responded properly. The faculty of reading could not be tested because of the blindness, but there was no word deafness. He became easily fatigued at the least attempt to talk; would drop promptly in the chair whenever he

was asked to get up and walk. He was somnolent and somewhat dull mentally, complaining of severe headache. In view of the condition of the eyegrounds associated with headache, vomiting, somnolence, and vertigo the diagnosis of an endocranial pressure, probably by a neoplasm, was made. As to the seat of the tumor, the cerebellar region was thought of because of the asynergia, of the tendency to walk toward one side, of the loss of the tendon reflexes in both lower extremities. A subtentorial decompression was advised and Dr. T. J. Schell performed the operation. Very great tension of the dura was discovered. The opening of the dura was followed by abundant hemorrhage. The bleeding at first could not be controlled in spite of all available means. Finally it was arrested, but the patient never rallied.

Autopsy was performed six hours later. The brain appeared large and wide. The left hemisphere was unusually large, long, flabby, and fluctuating at the base. The left temporal lobe was elongated in its anteroposterior diameter fluctuating upon the least pressure. Its anterior portion which was thin and flabby, was separated from the orbital portion of the brain by a cystic mass which apparently was continuous with the lobe itself. (Fig. 1.) The left optic tract, the part entering into the formation

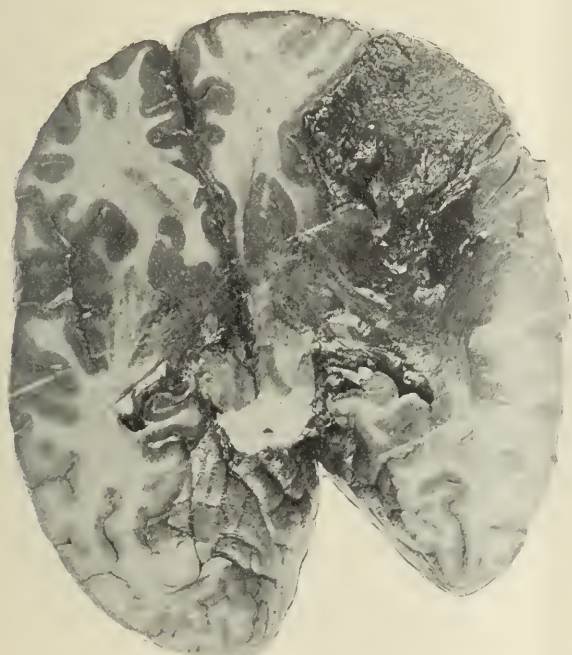


FIG. 1a.—Anteroposterior section. Tumor is seen wedged in between insula and frontal lobe. It extends into lateral ventricle, destroying surrounding tissue (Case I).

of the chiasm, was thickened and covered by a thick membrane which extended from the orbital portion of the brain back to the interpeduncular space. There was apparently a connection between the cystic mass and the third ventricle, as pressure upon the first produced fluctuation and elevation of the interpeduncular space. The cerebellum was apparently normal. Accidentally the cyst was punctured, and about two ounces of fluid escaped. After hardening the brain in ten per cent. formaldehyde solution for three days, an anteroposterior transverse section was made. In the left hemisphere a large mass was seen, wedged in between the frontal lobe and the insula, and extending into the lateral ventricle in its anterior and lateral horns, compressing, displacing, and destroying largely the surrounding tissue. Among the latter the white substance and the cortex of the insular region and of the lowest portions of the ascending convolutions, also the basal ganglia, especially the lenticular nucleus with the surrounding fibres, had all suffered considerably: all presented one uniformly softened mass extending back into the occipital lobe. The adjacent frontal portion of the brain being compressed by the tumor, was very much reduced in size. The cortical border of the occipital lobe was also reduced in size. The

posterior horn of the occipital lobe was deformed in shape. In the median line of the section there was seen an enlarged and oblong cavity leading into the third ventricle. The entire temporal lobe was softened and enlarged (Fig. 1a).

The tumor was hard in the centre, but soft at its periphery; its exterior portion underwent cystic degeneration. On the surface of the section multiple hemorrhagic foci were visible. Microscopically, the tumor was a round cell sarcoma. Microscopical sections of brain tissue lying close to anterior and posterior portions of the neoplasm, showed a mass of degenerated and deformed fibres.

CASE II. W. L., colored, forty-five years old, laborer, right handed, was seized, two years ago, with an apoplectic seizure consisting of complete loss of speech and a mild right hemiplegia. The speech rapidly improved, but remained somewhat indistinct. The weakness of the arm and leg gradually, but very imperceptibly, increased, and only at the end of a year a typical hemiplegia with its habitual signs developed. When two years later he came under my observation, the following phenomena were in evidence: The rigidity in the right arm and leg was distinct but only slight. Passive and active motions were possible. The leg was less active than the arm. The knee jerk was exaggerated. The Babinski and Gordon signs and ankle clonus were present. The right lower half of the face was somewhat deviated to the left. There was a very pronounced hemianalgesia on the entire paralyzed side. The senses of touch and temperature were only diminished. The patient complained continually of pain in his right arm and leg. The right hand was somewhat ataxic and frequently moved involuntarily upward. The fingers were animated with athetoid movements. There was no astereognosis, no asymbolia. The faculty of speaking was preserved, but some words, especially those containing labial letters, were not altogether distinct. He could, however, make himself understood and understand others. There was no word blindness nor word deafness. The mentality was well preserved.

The eye examination was negative, with the exception of an inequality of the pupils, the right being the larger. The right ventricle was dilated and the aortic second sound much accentuated. The sphincters were intact. The urine contained traces of albumin, otherwise was negative. Wassermann test negative.

The patient's condition remained unaltered for a period of two months, when he suddenly became comatose and developed epileptic seizures. The convulsions were almost totally confined to the right arm and leg, and only occasionally were they seen on the left side. The eyes were constantly turned to the right side also during the intervals between the attacks. When the head would be forcibly drawn to the left side, the eyes would nevertheless remain turned to the right. Nystagmoid movements of the eye to the right were also evident. The convulsions were very frequent and lasted two days. Patient remained unconscious for six successive days, at the end of which time he expired.

Autopsy was performed six hours later. The brain was removed and after hardening in ten per cent formaldehyde solution, an anteroposterior transverse section was made. A very large recent hemorrhage was found in the right lateral ventricle, extending from the anterior end of the anterior horn and extending back to the posterior horn. The hemorrhage destroyed the basal ganglia and the surrounding white matter, also the internal capsule. It was evidently the immediate cause of the patient's comatose state and death. In the left hemisphere an old softened area was found, situated at the level of the beginning of the posterior cornu involving the lenticular nucleus, the internal capsule, and partly the optic thalamus, extending back at a short distance into the white matter of the occipital lobe (Fig. 2).

CASE III. O. A., colored, aged thirty-eight years, laborer, right handed, with a history of syphilis at the age of twenty-three years showed suddenly a right hemiplegia without loss of consciousness. The paralysis was typical (rigidity of arm and leg, toe phenomenon, etc.). For three consecutive months, until his death, the patient presented no motor aphasia, no dysarthria, but partial alexia and partial verbal amnesia. The mental condition was, on the whole, fairly good. He could converse with the nurse on the weather and his family, gave prompt and clear answers on the sub-

ject of his illness, on his comfort or discomfort; at times, however, there would be lapses of memory and in comprehending. (A detailed account of this case was given in *Archives of Internal Medicine*, December, 1910, vi, p. 709.)

The autopsy showed the following condition in the left hemisphere: The entire left internal capsule was totally softened. The anterior portion of it presented a shriveled folded mass. The lenticular nucleus, the external capsule, and the head and tail of the caudate nucleus were completely destroyed. The very posterior portion of the capsule and a part of the inferior longitudinal bundle surrounding the posterior cornu of the lateral ventricle were also involved. The left optic thalamus was found very much paler than the right, and the part of it adjacent to the capsule is also softened. A particularly deep destruction was seen in the portion of the softened area which was in contact with the subcortical tissue of the insula where a deep depression was seen. The softening also extended at a certain distance into the supramarginal gyrus, but the white matter of the angular gyrus was apparently intact. (Fig. 3.)

An analysis of the three cases with reference to the problem of aphasia irrespective of other inter-

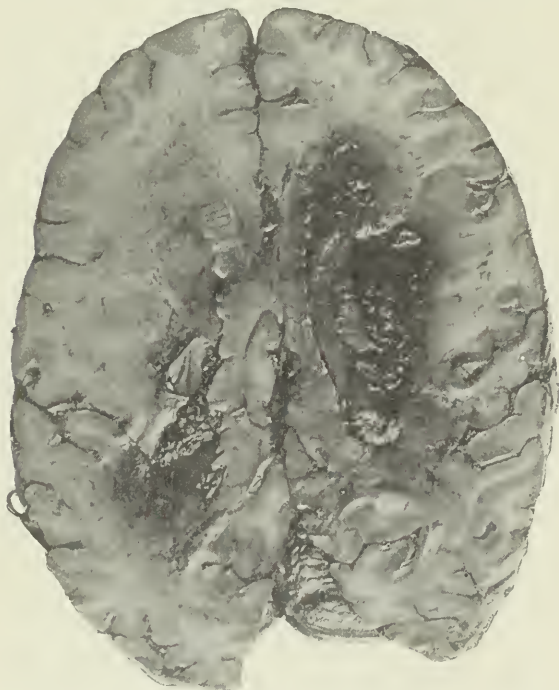


FIG. 2.—Recent large hemorrhage in right lateral ventricle. Old softened area in left hemisphere destroying lenticula, internal capsule, and posterior cornu of lateral ventricles (Case II).

esting pathological features leads to the following thoughts. In Case I a large tumor is found on the left, between the frontal lobe and insular area, at the periphery of the brain, thus compressing considerably Broca's region and the insula, also extending into the substance of the brain, destroying the lateral ventricle and the neighboring tissue, particularly the lenticular and caudate nuclei, internal capsule, external capsule, and claustrum, in other words, destroying the square area designated by Marie as the lenticular zone. On the other hand, we find here a very pronounced softening and dilatation of the entire left temporal lobe. Wernicke's speech area was therefore to a great extent involved. Applying these pathological data to the clinical picture of the case from the standpoint of motor and sensory aphasia, one is struck with the total absence of speech disturbances which should have been ex-

pected. The classical Broca's convolution was seriously affected, and still the patient's motor speech was intact. Marie's lenticular zone was very seriously damaged if not totally destroyed, and still there was no dysarthria or anarthria. While the patient at times pronounced the words slowly, nevertheless there was no disturbance of phonation or of articulation of words. In the classical motor aphasia, not only the spoken language is altered, but also the inner language. In anarthria or dysarthria the inner language is perfectly preserved, and only the pronunciation is deficient. In our patient neither of the phenomena was observed. Moreover, the softened temporal lobe gave no sign of sensory aphasia: there was no word deafness. It is evident that the clinical facts and the pathological findings are not reconcilable in this case, and neither the partisans of the old classical view on aphasia nor those of Marie's school find here strong corroboration of their respective opinions.

In Case II, apart from the extensive recent hemorrhage in the right hemisphere, which was in all probability the immediate cause of the patient's sudden death, an old softened focus was found, beginning in the central portion of the left hemisphere and extending back into the white matter of the occipital lobe. It therefore occupied the posterior portion of Marie's lenticular zone, as the lenticular nucleus and the posterior part of the internal capsule were included in the softened area. The patient presented during life symptoms corresponding to the foregoing pathological findings, viz., hemiplegia and hemianesthesia with hemianalgesia. The hemiplegia was slight for a long time, but the hemianalgesia and hemianesthesia established themselves immediately after the apoplectic insult. If, in addition to this, we consider the paresthesia and pain on the same side, which also lasted through the entire illness of the patient, the picture of the thalamic syndrome is complete. The condition of the speech is the most important element in the case from the standpoint of the subject of aphasia. As we have seen, the patient presented during life no symptoms of Broca's or Wernicke's aphasia, but he had difficulty in pronouncing distinctly some words, especially those containing labial letters, in other words, he had a certain degree of dysarthria. The inner language was perfectly preserved, but the pronunciation of words and syllables was deficient.

This case therefore demonstrates, on one hand, absence of motor or sensory aphasia and, pathologically, the integrity of Broca's convolution, on the other hand, partial involvement of Marie's lenticular zone and clinically the disturbance of speech of a paralytic nature, namely dysarthria.

In Case III we find a total destruction of the left lenticular zone, including the inferior longitudinal bundle, otherwise speaking a condition which according to Marie should have produced dysarthria or anarthria. However, during life there was no trace of paralytic manifestations of speech. The patient's pronunciation was clear and distinct. But some word blindness and partial verbal amnesia were evident and still the angular gyrus, the supramarginal gyrus, the posterior portion of the first two temporal convolutions—all belonging to Wer-

nicke's area, were found intact. Marie's view on anarthria cannot therefore be demonstrated by the present case, but his view on sensory aphasia, which is at variance with the old conception concerning Wernicke's zone, finds here its confirmation to a certain extent. The present case fails to weaken the validity of the old Broca's conception on motor aphasia, which, according to Marie, does no more play any rôle in aphasia. The third frontal convolution, as well as the insula, was found here intact macroscopically and microscopically.

To sum up, we observe that the first case is a strong demonstration of the untenability of the old Broca's conception, also it is against Marie's new view on aphasia, as there were no symptoms of disturbed speech, and still considerable involvement was found of the areas which are supposed to control it. On the other hand, part of Wernicke's zone being involved, nevertheless no symptoms of sensory aphasia were present.

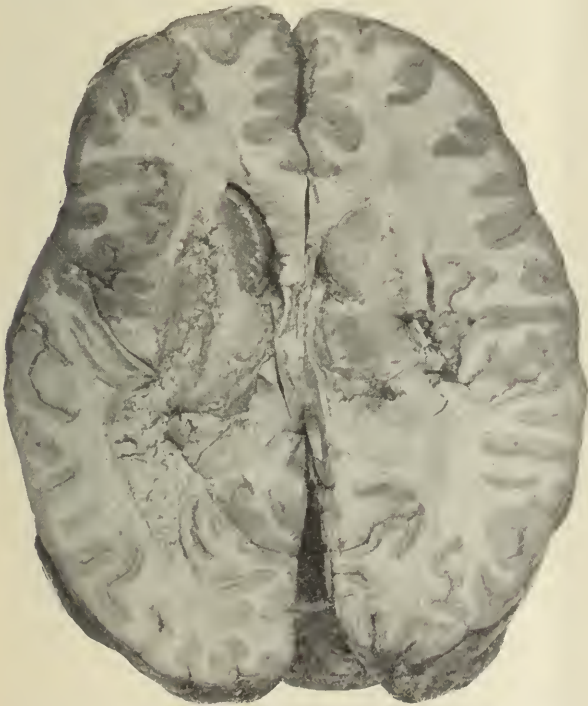


FIG. 3.—Left lenticular nucleus, internal capsule, external capsule, head and tail of caudate nucleus, tissue in contact with insula—all softened (Case III).

The second case is unlike the first. It is a confirmation of the classical ideas on the third frontal convolution and on Marie's localization of anarthria. In the third case again there is nothing to invalidate the old conception of Broca's aphasia, but there is sufficient ground for not accepting Marie's views on anarthria. On the other hand, in spite of the integrity of Wernicke's zone, the patient presented, nevertheless, some symptoms of sensory aphasia.

The conclusion which naturally forces itself from the study of these three cases, as well as from other cases reported in the literature, is that since Marie's startling announcement, made in 1906, the subject of aphasia has been thrown into a state of confusion. As soon as the cases began to be more cautiously scrutinized, and the pathological findings

more carefully examined than heretofore, it was found that some of them were characteristic of the old Broca's aphasia in every detail, while others only in part, still others were contradictory, and finally some cases answered Marie's requirements. As to Marie's new conception on aphasia and anarthria, the field of observers is again divided and subdivided. Indeed there can be no doubt that in a certain series of cases the findings correspond precisely to the distinguished French neurologist's contention, but this is unfortunately not always the case. There are now too many contradictory cases on record to permit us to accept his view *in toto*. But then Broca's classical aphasia also suffered a severe blow. Since Marie's work we must admit that the old localization can no more be admitted as invulnerable as there are now too many evidences to the contrary. A brief account of some of the most illustrative recently published cases will be of interest.

I. Cases invalidating absolutely the classical localization of aphasia are published by:

1. Vigouroux and Naudascher, *Bulletin de la Société anatomique de Paris*, 1908, p. 86; Motor aphasia and agraphia, but integrity of Broca region and of zone of language; softening of both temporal lobes, right more than left were found.

2. Ladame and Monakow, *Encéphale*, 1908. Apoplexy, mutism, Broca's convolution destroyed. Inner language preserved in spite of degeneration of fibres going to auditory and visual centres.

3. Mahaim, *Bulletin de l'Académie de médecine de Belgique*, 1909, p. 943. A case of aphasia with complete recovery in spite of a focus in Broca's convolution and operculum.

4. Dupérié, *Journal de médecine de Bordeaux*, 1909, p. 119. A case of total aphasia in spite of integrity of the third frontal convolution. A focus was found in temporal and angular gyrus.

II. Cases invalidating Marie's conception of aphasia and anarthria:

1. Liepmann, *Monatsschrift für Psychiatrie*, 1909, p. 189. Case of motor aphasia with complete integrity of the lenticular zone.

2. Mahaim, *Bulletin de l'Académie de médecine de Belgique*, 1910, p. 95. Case of lesion in the lenticular zone without aphasia or anarthria.

3. Van Gehuchten, *Le Névrose*, 1910, p. 5. Softening of the entire lenticular zone without aphasia or anarthria.

Since Marie called attention to the faulty exclusivism of the old classical localization of aphasia, Wernicke's area of sensory aphasia has been found also deprived of its absoluteness. Among the most recent observations in this respect that of Briand's (*Revue de psychiatrie*, 1909, p. 507) is the most striking. It was a case of motor aphasia without a single manifestation of sensory aphasia, still Wernicke's zone was found greatly involved. An almost similar condition was observed in the case of Sabrazès and Dupérié (*Journal de médecine de Bordeaux*, 1908, pp. 86-91).

In my personal three cases I also find clinico-anatomical reasons invalidating Marie's new contention, as well as the generally adopted ideas concerning Broca's motor aphasia and Wernicke's sensory aphasia. On the other hand, a large number

of observations have been published, showing the correctness of the classical and of the new views, more however of the former than of the latter. The conclusion to which one is naturally led to arrive, is that not one special area alone is involved in the faculty of speech and in the various manifestations of the latter, but very probably several anatomical elements are concerned simultaneously, as the multiplicity of lesions ordinarily encountered in cases of aphasia is certainly striking. Marie's great merit consists in calling attention to a chapter of pathological physiology which no longer could remain unchallenged. Although like his predecessors he advanced a view which is penetrated by absolutism, nevertheless his arguments for a revision of the study on aphasia awakened the curiosity of scientific minds in the problem of aphasia, so that no longer the former exclusivism can be maintained. If Marie did not solve the question of localization of aphasia, he nevertheless demonstrated the necessity of looking for pathological data other than Broca's and Wernicke's areas, and indeed he proved it beyond doubt. We are far from having solved the problem of aphasia, and the scientific impetus for further research given by Marie is all to his great credit. A very vast amount of material is necessary before we shall be able to draw final conclusions.

1430 PINE STREET.

AN UNUSUAL INDICATION FOR CÆSAREAN SECTION.

Ventrosuspension of the uterus (with linen thread) complicating pregnancy.

BY J. DAWSON WHITALL, M. D.,
Philadelphia.

We are taught that ventrofixation of the uterus in a child bearing woman is a dangerous procedure unless both ovaries are removed or both tubes are ligated and divided. To go a step further, one may say that ventrosuspension with linen thread in a child bearing woman is just as dangerous a procedure as the former, being virtually a fixation, as in the case herein reported. It seems to the writer that too little weight is given to this very important point, for the operation is not an uncommon one.

CASE. E. S., aged twenty-nine years, had borne two children both living and well; the first normally, the second with forceps, during which confinement she had convulsions. Since that time she had been more or less of an invalid, suffering with terrific headache, backache, and chronic constipation. In January, 1911, she was operated upon in one of the large hospitals in Philadelphia, when she was curetted, the appendix removed, cysts in both ovaries were punctured, and the ventrosuspension with linen thread was done. No section of the tubes was done to obliterate their lumen. The patient was much better following the operation, but became pregnant in November of the same year. I first saw her in what was supposed to have been her sixth month, owing to a miscalculation of her menstrual history. From almost the beginning of her pregnancy she had abdominal pain, which progressively became worse, preventing her from standing in the erect position or walking at all. She had a great deal of bladder disturbance and was extremely constipated.

Physical examination revealed a fairly well nourished woman whose face showed pain. Marked thyroid enlarge-

ment (right lobe); heart and lungs negative; abdomen showed a small scar, about an inch in length, in the median line, which is retracted. Palpation was very painful over the lower quadrant of the abdomen. Uterus about the same size as in a seven month pregnancy. *Vaginal examination:* Cervix very difficult to find, being tilted directly backward in the posterior fornix; fundus was low and anterior. The posterior uterine segment could not be palpated.

She was watched carefully, and the possible dangers were pointed out to the husband. Three weeks before her expected confinement, the suspension stitch apparently released itself, as from this time she could walk about the house with comparative comfort. One week following examination the cervix was found to be dilated to the size of a half dollar, while the uterus was in tonic spasm. At this time the lower uterine segment could be outlined with ease, it being as thin as parchment so that the child's head could be easily outlined. There was little if any engagement.

The question then arose whether she would deliver herself or have forceps used. She had unquestionably been in labor for a number of hours with no engagement and very poor uterine contractions while the uterus was in chronic spasm. As there was danger of rupture of the womb (whether normally or instrumentally delivered) she was seen in consultation with Dr. H. P. Proctor, obstetrician to the Northwestern General Hospital, who concurred that less risk attended an immediate Cæsa-rean section than either normal or instrumental delivery. Accordingly she was admitted to the above named hospital and prepared for an immediate section. No vestige of the suspension stitch was found, but the uterus posteriorly was so thin and poor in musculature that the fetus could readily be outlined. After walling off the intestines from the field of operation the uterus was incised and, unfortunately, immediately over the placental site, so that hemorrhage was profuse, making a rapid extraction of the child imperative. The cord was clamped and cut, the child given to an assistant; all membranes and placental tissue were removed; the uterus was stimulated to contract with hot salt solution; interrupted No. 3 chromic gut sutures were passed through all structures except the mucous membrane. Next a second row of interrupted Lambert sutures, burying the first, were introduced. A quart of saline solution was left in the abdomen, which was closed in layers. The patient was twenty minutes under the anesthetic, which was the nitrous oxide ether sequence. Mother and baby left the hospital on the seventeenth day both in good condition.

SUMMARY.

1. Ventrosuspension of the uterus with linen thread in a child bearing woman is a dangerous procedure unless both ovaries are removed or the tubes obliterated, because it is virtually a fixation.
2. The lower uterine segment and posterior wall become so thinned in its effort to compensate for the enlarging fetus, that rupture of the uterus would be extremely easy, whether normally or instrumentally emptied.
3. If a ventrosuspension is done at all, use *catgut*, not linen, which will release itself later if the patient becomes pregnant.
4. As to treatment in a linen thread suspension, complicating pregnancy, one of three methods may be followed:

1. *Noninterference*, when, trusting to luck that "Nature will take care of the condition" the patient runs the chance of a ruptured uterus.

2. At the first sign of trouble with the suspension stitch (if linen) it should be released by abdominal section.

3. If the patient is seen too far along in her pregnancy (as in this case reported) when the damage has already been done to the growing uterus, she should go to full term and have an elective Cæsarean section done with less risk to herself than a normal (?) labor would entail.

2025 CHESTNUT STREET.

THE ETIOLOGY OF RABIES.

BY FREDERICK PROESCHER, M. D.,

Pittsburgh,

Pathologist, Allegheny General Hospital.

As previously reported (1), I found an anti-formin resistant microorganism in the brain of twelve dogs infected with street virus and in three

formin sediment from the dogs' brains which produced typical hydrophobia.

On account of the difficult technic in finding these microorganisms by use of anti-formin, I resolved to try again to demonstrate them by direct staining of smears and sections without using anti-

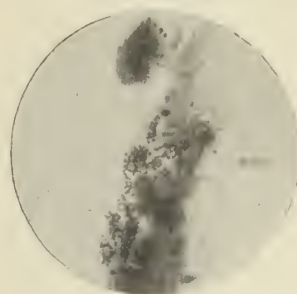


FIG. 2.—Fixed virus, Pitts-
burgh; azur carbonate; oil im-
mersion 1/12, ocular 4.

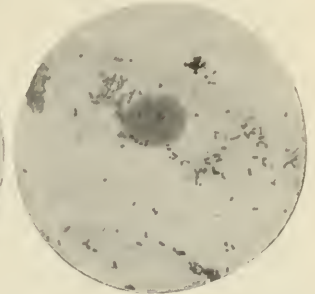


FIG. 3.—Fixed virus, Wash-
ington; azur carbonate; oil im-
mersion 1/12, ocular 4.

formin. As a consequence, I found, after using a great list of aniline dyes, that the azur carbonate (Unna-Giemsa) was the only one which gave a uniform and constant result. Sections and smears were stained with one per cent. carbolazurcarbonate solution and differentiated in equal parts of acetone and alcohol.

With this staining method, the entire cycle of the rabies virus can be demonstrated. We find cocci and bacilliforms similar to those previously found with anti-formin and in the unchanged smear stained with Gram. In addition, there was a spirochete form which was not demonstrated with either the anti-formin method or the Gram stain.

To establish the efficiency of this staining method, I examined the fixed virus from different Pasteur institutes.¹ I was able to find the same microorganism in all the different strains. The brain substance on all our common culture mediums was sterile, both anaerobic and aerobic cultures.

The great pleomorphism of the rabies virus is striking, but I think we can satisfactorily interpret all the different developing forms. We know that the virus travels along the nerve fibres. Therefore, there must be a motile form which is represented by the spirochete form. The bacillary and coccilike forms correspond to the vegetative and sporelike form of rabies virus. The exclusive staining properties of the rabies virus and its almost achromatophilia to all aniline dyes except azur carbonate almost establishes the fact that this is a specific microorganism.

Babe's (3) microscopical findings of dustlike granules in the nerve cells which he demonstrated with a combined staining method after Cajal and Giemsa, also shown by Koch and Rissling (4), with Haidenhein

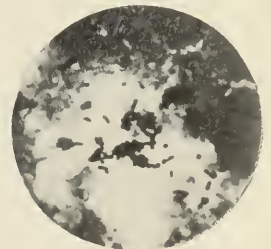


FIG. 4.—Dog, salivary
gland; anti-formin sediment,
Gram stain; oil immersion
1/12, ocular 4.

FIG. 1.—Fixed virus, Chicago; azur carbonate; oil immersion 1/12, ocular 4.

rabbits infected with fixed virus. The microorganisms were nonacid resistant, stained after Gram, and found in form of bacilli and cocci, either isolated or arranged in chains or groups. The bacilli were 0.5 to one μ . long and 0.3 μ . thick. They were similar to the microorganism found in one instance only, in a smear of freshly prepared fixed virus which was fixed in bichloride alcohol and stained after the modified Gram method. If these microorganisms bear any relation to rabies, they must be present in the salivary glands and the nerve ganglion, as well as the brain.

By dissolving the salivary glands of three dogs and the salivary glands and nerve ganglion of a cow, all of which were proved hydrophobic by animal inoculations, I found the same microorganism as in the brain. Further proof (2) of their etiological relation to rabies was demonstrated by the intracerebral injection of rabbits with the anti-

¹U. S. Marine Hospital Service, Washington, D. C.; Chicago Pasteur Laboratory; New York Pasteur Laboratory, and Pasteur Department of Biological Laboratory of Alexander.

iron hematoxylin and later with von Krogh stain, and which they all consider a form of rabies virus, I believe are degenerative products and not microorganisms. I also believe that the Negri bodies, especially the "inner bodies" which are considered to be sporulation forms of rabies virus, are degenerative products of nuclear origin. The artificial cultivation of the microorganism will be the final proof of the etiological specificity.

Encouragement is given me in my efforts to cultivate the microorganism from the fact that after keeping the fixed virus in sheep plasma for nine days at 37° C., it was fully virulent. The injection of the serum water of this culture killed a rabbit in ten days, with typical symptoms of hydrophobia. A control culture of fixed virus in bouillon was rendered avirulent in five days. In the rabbits injected intracerebrally with this culture rabies did not develop.

Although few in number, these experiments teach that an effort to obtain artificial culture may not be in vain, and I still endeavor to cultivate this microorganism. The biological properties of rabies virus are akin to those of poliomyelitis and smallpox, and possibly they have similar staining properties.

Smears were made from the cervical part of the spinal cord in a case of poliomyelitis which was previously observed and published two years ago. The diagnosis was confirmed by inoculation of a monkey in which typical lesions developed. I stained some of these smears with azur carbonate after fixation in methyl alcohol. I found a great number of coccilike formations in one of the smears, while the original culture, taken from the spinal cord two hours after death, was absolutely sterile. With the usual staining methods of a great number of smears, no microorganisms were found. This is not sufficient to draw a conclusion, but it may give a clew toward demonstrating the microorganism of poliomyelitis.

A more extensive report of my observation of rabies and poliomyelitis will be given later.

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2. Resistance of the Street Virus to Antiformin, *IBIDEM*, July 29, 1911.
3. BABES: *Zeitschrift für Hygiene und Infektionskrankheiten*, 1907.
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100-110 EAST STOCKTON AVENUE.

TREATMENT OF HEMORRHAGE BY MEANS OF PRECIPITATED BLOOD SERA.

*Together with a Method of Estimating the Activity
of the Latter.*

By G. H. A. CLOWES, Ph.D.,
Buffalo, N. Y.,

AND F. C. BUSCH, M.D.,
Buffalo.

INTRODUCTION.

Persistent hemorrhage from small vessels may be due to a variety of causes, the most important of which are diminished or delayed blood coagulation, high blood pressure, and persistent vasodilatation. It is proposed in this communication to present a

mode of procedure which has proved of considerable value in treating the first and most frequently occurring condition, a low coagulation factor. Abnormally low or retarded blood coagulation may occur as a more or less constant defect in true bleeders or hemophiliacs, as a transient condition in patients suffering from toxemia, and occasionally without any demonstrable cause in apparently normal individuals. It is not the purpose of this article to discuss the probable nature of the defect in question. It may, however, be stated that the view once held that calcium deficiency is the main cause of persistent hemorrhage has been disproved.

Since the commencement of our work on the treatment of hemorrhage, a series of articles has been published by Howell (1) and his associates throwing considerable light on the mechanism of blood coagulation, and indicating a variety of ways whereby, under pathological conditions, coagulation may be retarded or entirely prevented.

It has long been known that the fibrin clot results from the coagulating action of thrombin, the so called fibrin ferment, on fibrinogen a normal constituent of the blood, in the presence of calcium. There has been considerable speculation regarding the origin of thrombin and the forces which under normal conditions result in the liberation of this body from its precursors when a bloodvessel is sufficiently injured to cause hemorrhage. Howell has demonstrated that retardation or suspension of clotting is frequently attributable to the action of a body designated as antithrombin, which neutralizes thrombin; and that it is only after removal of the antithrombin or the addition of a further amount of thrombin that coagulation can be induced under such circumstances. It is also possible, especially in cases of hepatic cirrhosis, that the fibrinogen content of the blood may fall so low that even in the presence of an adequate proportion of thrombin the clot formed is not sufficiently tough to effect the desired result. For details regarding the processes in question and the extent to which individual constituents of the blood may vary under varying pathological conditions, reference may be made to a recently published paper by Whipple (2).

Practical experience would indicate that in the large majority of cases of pathological hemorrhage, thrombin is not liberated in sufficient quantity or rapidly enough to produce the desired clot. A rational therapeutic procedure to obviate this defect would be to introduce into the system a supply of the ferment in question, through the instrumentality of which the normal coagulation process might be induced. Fresh normal serum from whatever source contains large quantities of fibrin ferment, and the administration of serum, either locally or by subcutaneous injection, has been found to give excellent results in the hands of a large number of investigators.

For a general review of the literature on the use of serum in the treatment of hemorrhage, reference may be made to recently published papers by Probasco (3) and Leschier (4). While serum has been used in isolated cases in the treatment of hemorrhage since 1897, in which year Bienwald (5) reported the successful treatment of a case of hemophilia by this means, the procedure does not appear to have been generally adopted until recently.

The brilliant results reported by Welch (6) in the treatment of hemorrhage of the newborn, have doubtless served to focus attention on this therapy and have led to its use in all cases of otherwise uncontrollable hemorrhage. The sera of a large variety of animals have been employed, but a prejudice seems to exist in favor of fresh human serum, the use of which is considered to entail less risk of toxic effects. Rabbit serum has been successfully employed and does not appear to have given any unfavorable symptoms. Horse serum has been used extensively, but apparently with some hesitation on account of the supposed risk of anaphylaxis. The greatest degree of toxicity has been ascribed to the serum of bullocks and dogs.

SEPARATION AND PRECIPITATION OF BLOOD SERUM.

In our early experiments human and rabbit sera freshly separated from the clot were used with satisfactory results in the treatment of hemorrhage of the newborn and in other hemorrhages. Considerable difficulty was experienced in procuring blood serum when required in emergency; for even when taken with the greatest precaution and preserved sterile in a refrigerator, it rapidly loses its efficiency as an agent for checking hemorrhage. It was obvious that the difficulties in question might most readily be overcome by precipitating fresh serum in the form of a dry powder.

With this end in view we attempted to apply certain principles regarding the precipitation and conservation of enzymes, which had previously been worked out by Clowes (7) while engaged in researches on zymase, the enzyme of yeast. In these researches, which are still in part unpublished, Buchner's method, which consists of precipitating pressed yeast by means of acetone, was first employed. This method was subsequently modified, a mixture of acetone and ether being used as precipitant. This latter procedure proved peculiarly applicable, as after numerous experiments we succeeded in precipitating from blood serum an anhydrous, sterile, soluble powder containing the desired fibrin ferment in a relatively concentrated form.

Our first preparations were made from human and rabbit serum; but owing to the difficulty experienced in obtaining an adequate supply as the demand increased, we subsequently used the serum of horses, bullocks, sheep, and goats, from all of which satisfactory products were obtained.

Horse serum, for reasons stated above, is considered preferable to that of other animals, and so far as we have been able to judge is readily precipitated and yields a very active product. Consequently, for upward of a year we have worked almost exclusively with preparations derived from horse serum and have obtained clinical results fully equal to those previously obtained with precipitated rabbit and human sera.

The method of preparation which we have employed consists of precipitating fresh serum by means of an excess of a mixture of acetone and ether, and filtering under pressure to remove the precipitant. The amount of precipitant and the proportions of acetone and ether which it is necessary to employ in order to obtain the best results vary widely with the different animals, and even with animals of the same species. Even such apparently ex-

traneous factors as the temperature and degree of humidity of the atmosphere exert a marked effect on the process. Consequently, it is advisable to make one or two preliminary experiments from which to determine the best working conditions. The best results are obtained when the precipitate separates rapidly and is readily soluble in water. An observant individual easily acquires an appreciation of the factors making for or against the success of the process.

Fortunately, we have at our disposal a very reliable laboratory method (full details regarding which will be found at a later stage in this report) by means of which we are able to determine the relative blood clotting capacity of precipitated sera before using them clinically. This method is obviously of great assistance in controlling the preparation of the product, and serves as a valuable check on the results obtained. All preparations used clinically have been tested in this manner and have been found to exert a clotting action on plasma, varying from three to ten times that of fresh normal serum.

Precipitated blood serum, if properly prepared, is a friable, anhydrous, sterile powder, readily soluble in cold water at a concentration twice that of the original serum and, so far as we are able to judge from preparations made two years ago, retains its active principles unimpaired for long periods of time. A product of this type possesses over blood serum the advantage not only of permanence, but also of immediate availability, a factor of no small importance in dealing with hemorrhage.

APPLICATION OF PRECIPITATED BLOOD SERA IN THE TREATMENT OF HEMORRHAGE.

In upward of one hundred and fifty human cases of hemorrhage thus far treated products precipitated from the sera of human beings, rabbits, and horses by the method described above have been used. Recently, for reasons stated above, precipitated horse serum has been employed exclusively with excellent results. The types of hemorrhage treated include: Hemorrhage of the newborn; hemorrhage from gastric ulcer; hemorrhage from duodenal ulcer; pulmonary hemorrhage; hemorrhage during and after prostatectomy; hemorrhage from kidney pelvis; hemorrhage from bladder; uterine hemorrhage; hemorrhagic purpura; hemorrhages after turbinectomies and tonsillectomies. The serum powder has been applied as a local styptic to bleeding surfaces, as in oozing after nasal operations and from separated peritoneal adhesions. It has also been used with apparent success as a prophylactic before operative procedures upon the nose and throat. The fear has been expressed, as stated above, that anaphylactic reactions might result from the use of products derived from animal sera; but in our experience with upward of one hundred and twenty cases treated (many repeatedly) with precipitated sera of horses and rabbits no such symptoms have been noted.

We are indebted to a number of physicians for reports on the use of precipitated serum. The following are a few typical case histories illustrating the range of application of this product. For convenience the dose of serum powder employed has frequently been expressed in terms of its equivalent of fresh serum:

CASE I. Hemorrhage of the newborn. Well nourished male infant. Oozing of blood from the base of the cord occurred twelve hours after delivery, and twenty-four hours later a stool was passed, which on examination was found to contain a small amount of fresh blood. The bleeding from the cord was partially checked by means of a local dressing with the precipitated horse serum referred to above, but recurred at each dressing.

Following the discovery of blood in the stools a solution of blood serum powder equivalent to ten c. c. of fresh serum was injected subcutaneously. The oozing from the cord ceased entirely two hours after the injection and subsequent stools were found to be free from blood. No further hemorrhage occurred and recovery was uneventful.

CASE II. Hemorrhage of the newborn. Well nourished male child. Difficulty was experienced in introducing a one per cent. silver nitrate solution into the eyes, the lids being swollen and hard to separate. The necessary manipulation caused the expression of a thin bloodstained fluid, which continued to ooze from beneath the lids of both eyes, gradually increasing in quantity and in blood content, until within twenty-four hours from birth a frank hemorrhage had developed. The eyelids at this time were markedly puffed, as if from the accumulation of fluid beneath them, and blood escaped steadily drop by drop, at times forming an actual stream over the cheeks. The tension upon the eyelids at this stage caused so much distress that it was found necessary to press out the blood. The clots were very soft and melted when pressed between the fingers.

The application of adrenalin and cold compresses during a period of sixteen hours failed to relieve the condition, on the contrary, the bleeding steadily increased. At this stage a solution of five c. c. precipitated rabbit serum was injected subcutaneously and within three hours the bleeding from the right eye had ceased, and that from the left eye had markedly diminished. Clots expressed at this time were firm and normal. Two more serum injections, one of five c. c. and one of seven c. c. given at four hour intervals caused a complete cessation of bleeding and the treatment was temporarily discontinued. Thirty-six hours later, hemorrhage suddenly recurred from both eyes but was easily controlled by a single injection of ten c. c. of serum powder. Recovery was complete and further history uneventful. (Reported by Dr. Charles Wall, of Buffalo.)

CASE III.¹ Hemorrhage of the newborn. Poorly nourished male infant. The first evidence of hemorrhage was a small bloody stool twenty-four hours after birth, at which stage calcium lactate 0.06 gramme was given *per os*, every three hours. On the third day after birth two large bloody stools were passed and small petechial hemorrhages appeared upon the trunk and limbs. The calcium lactate was discontinued, and one injection of ten c. c. of rabbit serum powder solution administered subcutaneously. On the fourth day larger subcutaneous hemorrhages appeared on the thighs and abdomen, there was oozing of blood from the nasal and buccal mucous membrane, and one bloody stool. Three injections of horse serum powder solution (two of ten c. c. and one of five c. c.) were given in the course of the fourth day. On the fifth day three stools were passed containing, however, a smaller amount of blood, and there was no further spread of the subcutaneous hemorrhages.

The treatment was the same as on the previous day, three doses of horse serum powder totalling twenty-five c. c. being injected. On the sixth day three stools passed showed only slight traces of fresh blood and the subcutaneous hemorrhages were found to be rapidly fading. It was, however, decided to continue the treatment for another day, four injections of horse serum powder totalling twenty c. c. and one injection of five c. c. fresh human serum being administered. On the seventh day a stool passed was tarry in character, but all evidence of fresh hemorrhage had disappeared, and the treatment was discontinued. From this time on, there was no further evidence of bleeding either from the intestinal tract or subcutaneously and recovery was rapid and uneventful. (Reported from Buffalo General Hospital.)

¹The majority of cases of hemorrhage of the newborn have, in our experience, been relieved by one or two injections of precipitated serum powder. We have purposely selected this unusually stubborn case of hemorrhage for presentation in order to emphasize the importance of persistence in treatment, and to demonstrate that extremely large doses may safely be administered.

CASE IV. Persistent bleeding from a slight cut. This patient, a boy aged three years and nine months, had a hypertrophied heart, with apparently compensated congenital valvular heart defects. There was no previous history of unusual bleeding. A small cut at the base of the big toe of the right foot was dressed with apparent control of the hemorrhage which was not excessive. Hemorrhage however recurred during the night with considerable loss of blood. The bleeding was in large part controlled by passing a ligature through the wound and by the application of pressure; a constant oozing of blood, nevertheless, continued under the dressing. Perchloride of iron was then applied to the wound, after which it was repeatedly painted with collodion. This failed to prevent the oozing of blood, which continued during a period of nearly five weeks. When seen by one of us, in consultation, the child was nearly exsanguinated, and blood was seen to be slowly but steadily oozing from under the collodion dressing.

A subcutaneous injection of a five c. c. solution of human blood serum powder was administered, with the result that two hours later oozing from the wound had ceased and did not recur. The same dose of serum was repeated on three successive days. In five days the dressing came away and the wound was healed. There was no further bleeding and the child made a rapid recovery from the anemia. (Patient of Dr. Ross G. Loop, of Elmira, N. Y.)

CASE V. Hemorrhage of the newborn. Mild. A well nourished female child, the fourth day after delivery, had slight hemorrhages from the cord, from the nose, and from the vagina. The stools were normal. When first seen by one of us in consultation, there were a few petechiae on the ears and fingers.

A solution of human serum powder equivalent to five c. c. of whole serum was injected subcutaneously, at 5 p. m. During the evening slight oozing recurred from the vagina and the nasal mucous membrane. At 1 a. m. another serum injection of eight c. c. was given, after which there was no further hemorrhage. (Patient of Dr. N. G. Russell, of Buffalo.)

CASE VI. Pulmonary hemorrhage. Female, aged thirty-one years, with moderately advanced pulmonary tuberculosis. For three weeks previous to the use of serum, she had had hemoptysis of fair amount, at intervals of one to three days. Rest in bed, codeine, atropine, and finally aconite, failed to relieve the hemorrhages.

She was given, at two hour intervals, three doses of five c. c. horse serum powder solution. The expectoration on the day following serum injection was only slightly blood tinged. During the next three months, at the end of which period she was discharged with an arrested lesion, there were no further hemorrhages. (Patient of Dr. George Eckel, of Buffalo, N. Y.)

CASE VII. Hemorrhage from urinary bladder. Male, aged twenty-six years, had been passing bloody urine for four days. Microscopic examination of the urine showed numerous erythrocytes and leucocytes, in the ratio of ten of the former to one of the latter. A test with three glasses showed blood in equal amount in all.

A ten c. c. solution of horse serum powder was given by subcutaneous injection. On the following day the urine showed no blood macroscopically. Microscopic examination still showed numerous cells but in the ratio of sixteen leucocytes to one erythrocyte. (Patient of Dr. Carl Hopkins, Buffalo, N. Y.)

CASE VIII. Hemorrhage and purpura in typhoid fever. A woman, aged fifty-five years, in the fourth week of typhoid fever, had several severe intestinal hemorrhages, following which there was general subcutaneous bleeding over the abdomen and back. The patient was profoundly toxic and comatose. The freedom with which blood flowed from needle pricks of the ear lobes, made for the purpose of blood examination, afforded further proof of the extent to which the blood coagulability had been diminished. This condition had continued for a week before serum treatment was commenced.

Four doses of horse serum powder solution, each equivalent to ten c. c. of fresh serum, were given subcutaneously, on four successive days. No further intestinal hemorrhages occurred; the subcutaneous hemorrhages were rapidly absorbed; the temperature dropped and the coma disappeared. Blood coagulability improved as shown by the rapid clotting of blood after ear punctures. The patient

had no further hemorrhage, but three weeks later, died as a result of intestinal perforation. (Patient of Dr. William Getman, Buffalo, N. Y.)

CASE IX.—Hemorrhage from gastric ulcer. A woman, aged thirty-five years, had had an occasional unusually dark stool for one or two months preceding the attack, noted below. At 9.30 a. m. the patient vomited about 400 c. c. of fresh blood. Six hours later, a large bloody stool was passed, at which time the patient fainted. She was then taken to the hospital, had a moderate sized bloody stool during the night, another large red black stool the day following, and another that night. The same night she again vomited between 300 and 400 c. c. of blood. There was marked pallor and prostration at this time. The day following there was no stool or hematemesis. A day later there was another large red black fluid stool and one again two days later.

At this time patient received a subcutaneous injection of horse serum powder solution, equivalent to ten c. c. of fresh serum. The next day there was another bloody stool, and ten c. c. of serum was again injected, this time intramuscularly. There were no further hemorrhages, the patient made a rapid recovery, and has had no further attacks during the eight months that have elapsed since treatment. (Patient of Dr. Joseph Lewis, of Buffalo, N. Y.)

CASE X. Gastric hemorrhage. A man, aged sixty-five years, had been vomiting blood for one hour during which time the hemoglobin had dropped to thirty-two per cent. While bleeding was still in progress a solution of ten c. c. horse serum powder was injected subcutaneously and within fifteen minutes following the injection, bleeding had ceased and did not recur. (Patient of Dr. N. G. Russell, of Buffalo.)

CASE XI.—Bleeding from mucous membranes. Male, aged thirty-four years, Italian laborer, who had been in America three years. The only history of previous illness was an attack of chills and fever, six years before, which cleared up in a few days without medication. When first seen, May 25th, he complained of pain in the abdomen, vomiting of blood and passage of bloody urine. He vomited from four to six times daily, the vomitus containing a large amount of blood, there was also oozing from the gums. On May 26th the hemoglobin reading was seventy-five per cent. Patient was given calcium lactate, fifteen grains every four hours for three days without affecting the hemorrhages.

On May 30th a solution of horse serum powder equivalent to ten c. c. of fresh serum was injected subcutaneously. The following day hemorrhage from the gums had nearly ceased. There was no more hematemesis, and the bleeding from the gums and the bloody urine cleared up within forty-eight hours. As malaria was considered to be the etiological factor, he was given large doses of quinine. In three weeks he had regained his strength and the hemoglobin reading was between eighty-five and ninety per cent. (Patient of Dr. A. J. Cetola, of Buffalo, N. Y.)

CASE XII.—Hemorrhage following extraction of teeth. S. S., male, aged forty-five years, single. Had had diabetes, probably for the last five years up to March this year. Since then on a low carbohydrate diet, the urine had been sugar free. Slight cuts, such as those sustained in shaving, bled freely. July 29th, at 10 a. m., the left lower front bicuspid and first molar were extracted under cocaine anesthesia. There was very free bleeding from the molar socket for a short time. This diminished to a slight oozing until 5 p. m., when profuse hemorrhage occurred for a few minutes and again slackened to a steady oozing. The dentist (Dr. A. F. Isham) tried to stop the hemorrhage from 6 to 11.40 p. m. by the use of hot water, Monsell's solution, and by packing with adrenalin tape. At 10 and 10.30 p. m., calcium chloride, fifteen grains, was given. Strong pressure over packing controlled the bleeding which would however reappear upon release of pressure.

At 11.40 p. m., a subcutaneous injection of horse serum powder solution, equivalent to ten c. c. of fresh serum, was administered. The pressure and packing were continued for thirty minutes, at the end of which time, the packing being removed, bleeding was found to have ceased and did not recur. (Patient of Dr. William Irving Thornton, of Buffalo.)

CASE XIII. Uterine hemorrhage. Unmarried woman, nullipara, aged forty-two years. Profuse menstruation be-

gan July 12th. Hemorrhage continued practically unchecked in spite of treatment with astringents until July 19th, on which date a solution of cow's serum powder, equivalent to ten c. c. of fresh serum was injected subcutaneously. Hemorrhage ceased within two hours of the injection. Curettement was done on July 20th with unusually little hemorrhage. Diagnosis—endometritis. (Patient of Doctor Colton, of Buffalo.)

CASE XIV. Uterine hemorrhage. Mrs. X. Loss of blood as a result of excessive hemorrhage during three last menstrual periods, occurring at intervals of only two or three weeks, had been sufficient to cause collapse. Bimanual examination revealed a retroverted uterus, the size of a small grapefruit, with a smooth, soft, slightly dilated cervix.

After the subcutaneous injection of horse serum powder solution equivalent to 10 c. c. of serum, hemorrhage began to diminish and at the end of six hours had ceased. A prophylactic dose of ten c. c. was given an hour before curettement with the result that there was little bleeding during curettage and none afterward. Microscopic diagnosis, chronic endometritis. (Patient of Doctor Colton, of Buffalo.)

CASE XV. Rectal hemorrhage. Young woman, aged eighteen years, well nourished; personal and family history, negative. May 11th, consulted physician because of pain in rectum. Mucus and pus was present in stools. Had had a rectal discharge for two weeks previously. Digital and speculum examination was without result, because of accompanying pain. Was put on a restricted diet, with lactic acid milk, and given bowel washes of sodium perborate. For three weeks the condition remained stationary, at the end of which time pain increased and the rectal discharge became bloody. June 12th and 13th had profuse hemorrhages from the bowel.

After the third hemorrhage, a subcutaneous injection of horse serum powder solution, equivalent to ten c. c. of fresh serum, was given. Bleeding rapidly subsided. June 15th, under general anesthesia, examination with the proctoscope revealed an ulcer the size of a quarter. This was painted with ten per cent. silver nitrate, and recovery was uneventful. (Case reported by Doctor Colton, of Buffalo.)

CASE XVI. Nasal hemorrhage. Man, aged thirty-five years, railroad switchman; single. Family history negative. Had had no severe hemorrhage previously, although as a result of an accident, nine years ago, he lost his left leg. Had drunk (whiskey) to excess up to seven years ago, since which time he had been an abstainer. Wassermann test and tuberculin test both negative. First nasal hemorrhage, October 29, 1911, bled for an hour; controlled by packing. November 20th bled from left nasal chamber for two hours. Bled almost daily with varying severity up to December 23rd, when he entered the Sisters Hospital of Buffalo. Upon nasal examination, an ulcer on each side of cartilaginous septum was discovered. His red blood cells, at this time, numbered 1,390,000 and his hemoglobin was forty per cent. This was further reduced to thirty-two per cent. by January 19, 1912. Hemorrhages had continued almost daily since entrance.

On February 26th and again on March 7th solutions of five c. c. horse serum powder were injected subcutaneously. Hemorrhages subsided and finally ceased after March 11th, and by March 13th the nasal ulcers were healed. Recovery thereafter was rapid and uneventful. (Reported by Doctor Walsh, of Buffalo.)

CASE XVII. Pulmonary hemorrhage. M. B., female, aged twenty-two years, single, occupation schoolteacher. Had had several moderate sized hemoptyses in the course of a week, becoming increasingly frequent and severe.

Treatment of the patient by rest in bed and opiates having completely failed to relieve the condition, three doses of horse serum powder solution each the equivalent of ten c. c. serum were injected subcutaneously at intervals of two hours. There was no hemorrhage on the following day, and only a very slight hemorrhage on the second day after treatment, since which time no further hemorrhages have occurred. (Reported by Dr. George Eckel, of Buffalo.)

CASE XVIII. Prophylactic use of serum preceding nasal operation. E. W. H., aged fifty-seven years, male. Adenocarcinoma of the nose springing from the left ethmoid and sphenoid cells. During previous six months had several severe spontaneous hemorrhages from the nose and very se-

vere bleeding after an operation upon the growth by another physician.

Immediately before the last operation a subcutaneous injection of rabbit serum powder solution equivalent to ten c. c. of serum was given. The new growth was then enucleated so far as possible, with an unusually small amount of bleeding and with remarkable clotting of blood. The exact diagnosis of the new growth was made, later, by histological examination. (Reported by Dr. F. W. Hinkel, of Buffalo.)

CASE XIX. Nasal hemorrhage. Mrs. E. A. F., aged fifty-six years. Large mucous polyp, originating in the right maxillary sinus and filling the right nasal chamber. The polyp was removed December 26 and a considerable part of the nasoantral wall was resected in order to reach its point of attachment. December 28th, upon the removal of the tampon, a severe and continuous hemorrhage followed.

This was promptly checked by the injection of a five c. c. serum powder solution (rabbit's serum). January 2, 1912, the patient was awakened at 3 a. m. by a free hemorrhage from the right side of the nose. By the time that medical aid arrived, she had lost much blood. A five c. c. rabbit serum powder solution was injected subcutaneously, after which the hemorrhage rapidly subsided. Although there was no recurrence of hemorrhage, the serum injection was repeated on January 4th. On January 8th more of the antral wall was resected incident to the removal of another small polyp mass without recurrence of hemorrhage. (Report of Dr. F. W. Hinkel, of Buffalo.)

CASE XX. Nasal hemorrhage. Mrs. G. F. S., aged forty-five years, May 7th. Asthmatic. Hypertrophic rhinitis of unusual extent. There was, following thorough removal of hypertrophied tissue, including resection of the turbinates, a severe and continued hemorrhage, in spite of tamponage.

A two c. c. solution of horse serum powder was injected, this small dose being used because of a fear that asthma might be induced in this patient who had some idiosyncrasy in relation to the odor of horses. The hemorrhage rapidly subsided. A larger dose of serum was given, on May 9th, as a prophylactic, with no untoward effect. (Report of Dr. F. W. Hinkel, of Buffalo.)

CASE XXI. Use of serum as a prophylactic. Mr. F. S. S., aged fifty-seven years. Five years previously following removal of nasal polyps and free exenteration of the right ethmoid cells, there was severe and persistent hemorrhage. This was checked with difficulty by complete nasal tamponage. About ten days later a secondary hemorrhage occurred, of such severity and persistence that it was found necessary to ligate the right common carotid artery.

Recently, after the injection of five c. c. horse serum powder solution, polyps were removed from the right nasal chamber, with very little hemorrhage. This patient had arteriosclerosis and chronic nephritis. (Reported by Dr. F. W. Hinkel, of Buffalo.)

While small doses of the precipitated serum powder will frequently check hemorrhage we have found it advisable to administer relatively large doses, the amount most commonly employed being 0.6 to 0.7 gramme, which is equivalent to ten c. c. of whole serum. In certain cases of persistent hemorrhage injections have been repeated at frequent intervals, infants even having received from twenty to forty c. c. daily for periods of several days without any unfavorable effects. For prophylaxis against hemorrhage, accompanying or following operation, injections have been given the day preceding, and an hour before operation, and when postoperative hemorrhage was feared, one to two hours after operation.

The fear that anaphylactic reactions might result from the use of precipitated horse serum appears thus far to be groundless. No such reactions have been exhibited in any of the patients under observation, some of whom have received repeated doses. In a case of pulmonary hemorrhage, for example,

injections were given at weekly intervals for a period of four months.

The precipitated sera were generally readily dissolved by shaking for two or three minutes with cold water, the volume of water required being less than half that of the serum from which the powder was originally precipitated.

It is particularly important to note that human sera, and preparations derived from human sera are in no wise superior and seldom equal to those of certain animals.

METHOD OF ESTIMATING THE RELATIVE ACTIVITY OF FRESH AND PRECIPITATED SERA.

The relative rapidity with which the preparations in question cause coagulation of plasma when admixed with the latter at comparable concentrations affords an index of their coagulating activity. The preparation of plasma is as follows:

The blood of any suitable animal (that of a goat was employed in the majority of our experiments) is drawn into a large graduated tube containing a two per cent. aqueous solution of sodium citrate in the proportion of one part of the latter to three or four parts of the blood. The tube is cooled in ice, shaken gently to insure a thorough admixture of blood and citrate solution, and the contents are centrifugated to remove corpuscles. The clear plasma, which should be almost colorless if the operation has been satisfactorily performed, may be preserved in a refrigerator for several weeks.

The precipitated sera to be tested are dissolved at concentrations comparable with that of fresh serum, and each of the resulting solutions is admixed in at least two strengths with a constant amount of the plasma. The tubes are then shaken and placed in an incubator at 37° C. and observed at varying intervals of time from commencement of incubation, the result being recorded as follows:

+++ indicates the formation of a solid jelly, such that the tube may be inverted and even shaken gently without any indication of fluidity.

++ indicates the formation of a jelly which has not however set firmly enough to retain its form or permit of inversion of the tube.

+ indicates a slight but recognizable increase in viscosity compared with normal controls.

In the accompanying table a series of precipitated rabbit sera are compared with fresh rabbit serum by the method described above, and it will be observed that sera precipitated a year or more previously are fully as active as freshly precipitated serum and that all the preparations in question are apparently more active than fresh rabbit serum. That this effect is not due to traces of the precipitants has been amply demonstrated by control experiments in which the addition of small amounts of the precipitants employed exerted, if anything, a slight retardation.

Similar results may be obtained from precipitated sera of horses and other animals. We have made a comparison of various preparations obtained from rabbit serum rather than of similar products obtained from horse serum, because, having first employed rabbit serum and having at our disposal some of the earlier preparations, a better demonstration of the durability of the product is afforded than could be obtained from the more recently precipitated horse serum.

We are well aware that the results obtained by tests of this nature carried out *in vitro* are not necessarily indicative of the results to be anticipated *in vivo*. It has been noted, however, that these

preparations give clinical results corresponding so far as can be judged with the test tube results, those causing coagulation most readily *in vitro* being generally most effective *in vivo*. For example, the serum powder preparations which exerted a remarkably strong precipitating action on plasma, a year and a half after their preparation were found to be unusually active when subsequently employed clinically.

Similarly, the observation that even carefully preserved serum lost its coagulating effect on plasma in a comparatively short space of time, coincides with the general clinical experience that fluid blood serum, unless absolutely fresh, is of little value in checking hemorrhage.

It will also be noted that serum previously heated to 60° C. for thirty minutes has no coagulating action on citrated plasma, from which we may conclude that the action of the product in checking hemorrhage is probably attributable to its content of fibrin ferment. Since water at 60° C. destroys the action of the powder, we consider it advisable when making a solution for clinical purposes to keep the temperature of the water employed below 40° C.

eration of thrombin. It is proposed to investigate this and other theoretical questions in the near future.

CONCLUSIONS.

1. Blood serum is found to be of considerable value in the treatment of all forms of hemorrhage due to low blood coagulability resulting from diminished thrombin content.

2. Human serum is in no wise superior to that of a variety of animals.

3. Blood serum precipitated by means of a suitable mixture of acetone and ether is fully as effective as fresh serum, if not superior to it. Precipitated serum is freely soluble and possesses the advantage over fluid serum of being sterile, always available, and retaining indefinitely its capacity to stimulate coagulation of the blood.

4. The product obtained from horse serum appears to yield more uniformly satisfactory results than that obtainable from the sera of other animals, and exerts no deleterious effect.

5. The determination of the rapidity with which sera and solutions of precipitated sera at comparable concentrations cause coagulation of citrated blood plasma affords a simple means of estimating

TABLE.

Materials tested.	Vol. of sol. or serum in c.c.	Water added in c.c.	Citrated plasma in c.c.	Incubated at 37° C.			
				Extent of coagulation after			
				15 min.	30 min.	1 hr.	2 hrs.
Rabbit serum powder prepared 18 months previous; 7 per cent. sol..	0.25	...	0.5	+++	+++	+++	+++
Rabbit serum powder prepared 12 months previous; 7 per cent. sol..	0.05	0.2	0.5	+++	+++	+++	+++
Rabbit serum powder freshly prepared; 7 per cent. sol.....	0.25	...	0.5	+++	+++	+++	+++
Rabbit serum preserved sterile for three months.....	0.05	0.2	0.5	+++	+++	+++	+++
Fresh rabbit serum	0.25	...	0.5	.....	.....	.....	.....
Fresh rabbit serum, heated in advance, 30 min. at 60° C.....	0.05	0.2	0.5	.....	.....	.....	.....
Control	0.25	...	0.5	.....	.....	.....	.....

THEORETICAL CONSIDERATIONS.

It is not proposed to indulge in a theoretical discussion of enzymatic and physicochemical phenomena, but it might not be out of place to point out that the somewhat surprising observation that precipitated blood serum powder is more active than the serum from which it was derived, may readily be explained on the basis of the physicochemical theory of adsorption.

According to this theory, enzymes may be considered to function in virtue of a process of adsorption taking place on their exposed surfaces. If this be the case, the larger the aggregates the smaller will be the surface exposed, consequently, the lower the enzymatic activity. Furthermore, the deposition of foreign bodies on the surfaces in question might be expected to cause the frequently noted phenomena of retardation and ultimately complete suspension of enzymatic action. The precipitation of bodies possessed of enzymatic function by the method adopted in our experiments might be expected to result in a breaking down of the bodies in question into smaller aggregates than those originally present. These smaller aggregates might, according to our theory, be expected to exhibit an increased enzymatic activity on account of their increased and freshly developed surface area. It is possible that the greatly increased activity of precipitated sera may be attributable, at least in part, to elimination of antithrombin and consequent lib-

the relative activity of the preparations in question, and consequently of standardizing precipitated sera for clinical purposes.

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113 HIGH STREET.

SUSPENSION LARYNGOSCOPY.

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The direct method of examination of the larynx introduced by Kirstein possesses distinct advantages over the older indirect method, and was a step forward in the diagnosis and treatment of endolaryngeal conditions. As the technic became perfected and the original tubes of Kirstein were discarded for those devised by Killian and his pupil Brünings, larger vistas of usefulness were constantly opening for the newer method.¹

A further advance in the direct method of ap-

¹For a detailed description of the instrumentarium and the technic of direct laryngoscopy and bronchoscopy I must refer the reader to Brünings' book, in which the studies that led up to the adoption of the instruments and operative technic by Killian are exhaustively set forth.

proach to the larynx is the recently introduced suspension laryngoscopy of Killian. The method has been used in a number of cases with success, and as yet we are just on the threshold of its possibilities. In this country the method is as yet practically unknown. For this reason the writer deems it a privilege to be able to describe his somewhat extended observations of this procedure during a recent trip abroad.

THE INSTRUMENT.

The instrument can be described as a sort of gallows from which the patient's head is suspended by a hook while a spatula holds back the epiglottis and depresses the tongue into the floor of the mouth.

The gallows. The gallows is fastened to the side of the table near the head end. It has two motions—one anteroposterior along the length of the table, the other in the vertical plane. The anteroposterior movement is made with a screw and worm. The vertical movement has two adjustments—a coarse adjustment with a sleeve which can be clamped fast in any position and a fine adjustment with a screw. A horizontal arm stretches across the table from the top of and at right angles to the vertical arm to and beyond the mid line of the table. Along the horizontal arm is a series of notches to receive the hook.

The hook. The hook is thirty-two cm. (thirteen inches) long. The lower part is straight; the upper third, curved gently forward and upward, ends in a stout hook by which it is suspended from the gallows. Attached to the lower end of the straight shaft of the instrument is a bow which lies in the transverse, vertical plane and whose closed side is toward the left. The upper end of the bow fits into the shaft of the hook by a vertical rod which can be raised and lowered in the long axis of the shaft by means of a screw. The free end of the bow carries a small plate, which when the instrument is in position rests against the biting edge of the upper incisor teeth, or on the gums if the teeth be absent. This plate is parallel to the tongue spatula, which will presently be described. When the bow is lowered, by turning the screw in the shaft of the hook, the plate is forced down against the upper incisors and the mouth is opened wider.

On this plate there is a small shelf, five mm. in height, at right angles to it. The shelf can be moved forward and backward by a screw. It rests against the inner surface of the upper incisor teeth and serves to retain the instrument in place. When the instrument is in position, therefore, the upper incisor teeth, or the alveolus if they are absent, rests in the angle formed by the plate and this shelf. If the teeth are absent a somewhat higher shelf must be used.

Albrecht, of Berlin, has lately devised a hook which is designed to obviate the necessity for the toothplate and shelf. At a sufficient distance above the spatula to clear the chin, the vertical part of the hook is bent at right angles forward, i. e., toward the foot of the table. This horizontal arm and spatula are therefore parallel. At the forward end of the horizontal arm is another vertical arm whose end is hooked for hanging it over the gallows. The vertical distance from spatula to gallows is the same as in Killian's simpler instrument. The length of the horizontal arm is adjustable by means of a rack and pinion.

Albrecht asserts that by keeping the free end of the spatula directly under the point of suspension, the spatula will stay in position without any counter pressure against the teeth. In patients whose incisors are long, or whose mouths cannot be opened very widely, the thickness of the plate and shelf partially closes an opening already small and in some cases renders suspension laryngoscopy impossible.

Since the publication of his paper, Albrecht has been obliged to add the shelf, because in a certain number of cases the instrument could not be otherwise retained in the mouth.

The matter of keeping the instrument in position has been one of the most difficult problems in the development of suspension laryngoscopy. On the

cadaver, where his first work was done, Killian experienced no difficulties. In the living patient, however, this is not so easy. If, after the instrument is in place, the patient swallows, the larynx rises up and pushes against the end of the spatula which slowly slides from the mouth. Killian tried a number of methods to prevent this accident before he finally devised the small shelf which rests behind the incisor teeth. He set the spatula into the shaft at an acute angle; he roughened the surface that rests against the tongue, and he bent the forward end of the spatula so that it should hook into the larynx. A later and satisfactory though somewhat clumsy arrangement was an arm attached to the shaft above the spatula. The arm carried a large knob on its free extremity which could be hooked under the chin. The present arrangement of the plate and shelf serves a threefold purpose and takes up very little room. It holds the mouth open, holds the tongue out, and prevents the instrument from slipping.

The spatula. The spatulae are made of steel, are set at right angles to the shaft of the hook, and are interchangeable. The form of spatula now used is made like a gutter and is V shaped on cross section. The end at the shaft is widest. It narrows down toward the free end. The tip, however, broadens out, is flatter on cross section and curves slightly upward. There are four sizes of spatula. A short flat spatula has been devised for operations in the pharynx and mouth.

The light. Either reflected light, a head light of some form or other, or a small lamp fastened to the instrument, can be used. Reflected light is the least desirable. During the introduction of the instrument the light must be constantly shifted and this is annoying to the operator. At first Killian used the Kirstein head lamp, but the lamp attached to the instrument gives the most satisfactory illumination. A small lamp on a universal joint attached to the bow gives a very satisfactory light, or a small cold lamp can be fastened to one or both sides of the spatula. In neither of these methods is the light in the way of the operator. They give him a freer range of action than either the head light or the reflected light. A glass shield on a head band can be worn. Some form of shield is necessary, especially in tuberculous cases where the application of lactic acid and iodoform causes coughing. The blowpipe of Sidney Yankauer can be adapted to this instrument without encroaching upon the field of vision, and furnishes protection for the operator without causing him the annoyance of working behind a mask.

Instruments. A special set of instruments has been devised for operating in the suspended position. In general the ordinary forceps and curettes used in the laryngoscopic and bronchoscopic tubes can be used. The special instruments for suspension laryngoscopy are heavier and stronger than the latter. There is a universal grip to which is attached a tube twenty cm. long. The various biting and cutting forceps can be attached to the end of the tube, and are operated by a rod through its lumen. They are so made that they can be used for either side. In addition, a set of ordinary curettes for tuberculous granulations is made.

SELECTION OF PATIENTS.

The same difficulties that one encounters in using the direct laryngoscope are met with here. Patients who do not open their mouths wide, those with thick tongues or prominent incisor teeth are not especially adaptable to suspension laryngoscopy.

Before attempting this procedure the operator examines the mouth, pharynx, and larynx, and finally does a direct laryngoscopy with the Kirstein spatula. The success of the suspension laryngoscopy depends largely upon the degree that the tongue can be compressed.

PREPARATION OF PATIENTS AND ANESTHESIA.

Some patients, especially those who have had the

bronchoscope passed a number of times, can be examined by suspension laryngoscopy with only cocaine anesthesia. For this purpose Killian employs a twenty per cent. solution; about ten drops of cocaine solution, and three to four drops of a one to 1,000 epinephrine are applied directly to the larynx as for direct laryngoscopy. This is repeated two or three times. The first application is made to the epiglottis, the others to the deeper parts. For patients who are not tolerant under cocaine anesthesia, he employs, in addition, morphine and scopolamine. In some cases a general anesthetic is required.

Great care must be used in the preparation of the scopolamine solution. Heffter found that solutions of scopolamine began to deteriorate after six hours. For this reason a fresh solution is prepared each time. The dose used is 0.0003 gramme (about 1/200 grain), given two hours before operation and repeated in an hour. With each injection of scopolamine the patient gets 0.01 gramme (about 1/6 grain) morphine. If this dose is not sufficient a third injection of scopolamine, 0.00015 gramme, morphine 0.0005 gramme is given. If a general anesthetic is required, ether is used. In all cases the preliminary cocaine anesthesia is carried out. This inhibits the reflexes and the ether anesthesia need not be so deep.

The merits of scopolamine morphine anesthesia do not come into question here. Suffice it to say that with these doses and with fresh solutions a satisfactory degree of anesthesia can usually be obtained. In a long experience in Killian's clinic, as well as in other places, no untoward effects have been observed.

Scopolamine dries up the secretions, and one great source of annoyance and difficulty is spared the operator by the dry condition of the parts. There is very little secretion and the suction pump is scarcely ever used.

In children under sixteen years of age, it is not to be recommended; chloroform anesthesia is better. In order to still the cough reflex, small doses of codeine can be given. It is better to omit the preliminary cocaine anesthesia in children; if done at all, a weak solution should be employed. The combination of cocaine with general anesthesia can produce dangerous collapse.²

²The writer saw one case in Killian's clinic in which the cocaine was used before a general anesthesia in a boy of twelve years with an almost fatal result. After the cocaine anesthesia of the larynx the child was put upon the table and the moment that the spatula entered the larynx he went into collapse. The pulse almost disappeared, breathing became shallow, the face was pale, and the extremities were cold. Artificial respiration and stimulation were resorted to, and after a time the patient was restored. Some days later a fibroma was removed from his vocal cord in suspension laryngoscopy, the patient being under ether narcosis. There were no accidents and he made a complete recovery.

INTRODUCTION OF THE SPATULA.

Suspension laryngoscopy is done with the patient in the dorsal decubitus and with the head free of the end of the table. The gallows is fastened about four inches from the head end of the table on the right side. For the form of gallows now made, a flat table or at least one with a flat head end must be used. The operator stands or sits behind the head of the patient.

The patient's head is held by an assistant and another assistant has charge of the gallows. The proper spatula having been selected, the operator introduces it along the tongue until it comes in contact with the edge of the epiglottis. The gallows is then approximately adjusted.

In the next step the tongue is drawn out, either by the patient himself or by an assistant. The tongue need not be drawn out further than the edge of the teeth. The spatula is passed along the tongue until it reaches the posterior pharyngeal wall, and then the end is raised until the larynx is brought into view. The hook is now passed over the horizontal arm of the gallows and the latter brought into position by its fine adjustment.

The assistant holding the head can now very slowly and gently let go. As soon as the head hangs by its own weight the field will be considerably enlarged. The little plate on the end of the

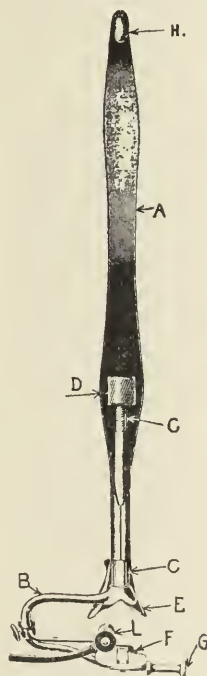


FIG. 2.—The hook from the back; a, shaft; b, bow; c, vertical rod to raise and lower bow; d, screw for raising and lowering bow; e, edge of spatula; f, tooth plate; g, screw for regulating tooth plate; h, hook by which instrument hangs over gallows; i, electric lamp on universal joint fastened to bow.

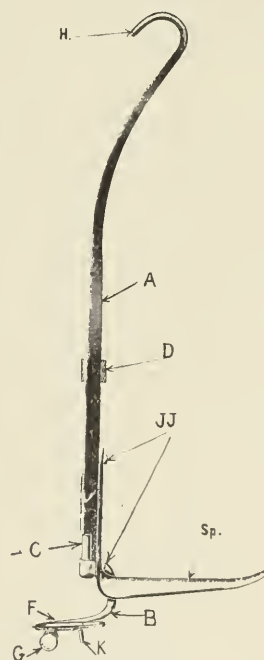


FIG. 3.—Hook from right side; a, shaft; b, bow; c, vertical rod; d, screw for moving bow; f, tooth plate; g, screw for regulating tooth plate; h, shelf for retaining instrument in mouth; i, hook; sp, spatula; jj, clips by which spatula is fastened to shaft.

bow must be so adjusted that the shelf rests securely behind the upper incisors. By means of the screw in the shaft the box can be lowered and the mouth opened wider.

It is well, before beginning, that the operator get an idea as to how wide the patient's mouth can be opened. Patients under cocaine or scopolamine morphine anesthesia will protest if the bow be lowered too far. In patients under general narcosis much harm may be done by overstretching the parts.

DIFFICULTIES.

It is not always simple to obtain a good picture. In general it may be said that the same obstacles encountered in the direct laryngoscopy are met with here. A great deal depends upon the tongue. A short, thick tongue, especially when the surface is much curved from side to side, usually baffles the operator. It is difficult and sometimes impossible to keep the spatula from slipping off sideways. A thick tongue, too, cannot always be sufficiently depressed into the floor of the mouth to give a good view of the larynx. Sometimes the epiglottis slips off the end of the spatula. This is overcome by substituting a longer spatula. Often a good picture cannot be obtained because the tongue has been pulled out too far. The tip of the tongue need not be brought further out than the edge of the teeth.

When difficulties are encountered in the introduction of the spatula, or where a good picture cannot be obtained, Killian recommends the use of a shorter spatula and its introduction from the angle of the mouth. Only half the tongue can be depressed and the field is much narrower than when the spatula lies in the middle line.

ADVANTAGES.

The two main points in favor of suspension laryngoscopy as a rational procedure are: First, the larynx is brought so near to the operator that manipulations are permitted that would be impossible with any other method of approach; second, the operator has both hands free with which to work instead of one as in all other methods. Another great advantage of suspension laryngoscopy is that secretions and blood tend to flow toward the pharyngeal roof which is the most dependent part. The opening of the larynx being in direct line of vision can easily be sponged free of blood and secretions. This enables the operator to make a longer and more thorough examination and to do more complete operations. He can, for instance, remove in one sitting small and not easily accessible growths or curette the larynx entirely free of tuberculous granulations.

THE LARYNGEAL PICTURE.

The picture in suspension laryngoscopy is extensive. One sees directly into the larynx. The epiglottis, of course, is not seen, being covered by the spatula. The oropharynx and the relations of the pharynx and larynx are well shown.

The first portion of the larynx to be seen is the posterior wall. The cords are in the cadaveric position. If the spatula is too broad it may be difficult to get a view of the anterior commissure. The substitution of a narrow spatula and pressure on the larynx externally, as suggested by Brünings, will usually bring the entire larynx into view.

CLINICAL OBSERVATIONS.

The malady that lends itself most readily to treatment in the suspended position is tuberculous laryngitis. Granulations can be completely removed at

one sitting. Infiltrations can be easily treated with galvanocautery. Smaller and larger growths in the larynx can be readily attacked in this position. Bleeding is easily controlled. Foreign bodies in the larynx are not difficult of removal.

The extirpation of pharyngeal growths, such as fibromata on the roof of the pharynx, is facilitated by this position. The writer saw Killian remove a large fibroma from the pharyngeal roof of a boy of twelve years. In his hands and in this position, this exceedingly bloody and difficult procedure was quickly and skillfully done, and the patient made an uneventful recovery.

Killian reports fifty cases in which he has used the suspension laryngoscopy without untoward results other than slight traumata of the pharyngeal wall or epiglottis, or an occasional squeezing of the tongue between the instrument and the incisor teeth. The latter accident can be avoided by placing a small cotton pad on the tongue.

The scopolamine morphine narcosis was satisfactory in almost every case. In only two was a general anesthetic used. Applications of twenty per cent. cocaine were made in most cases. The majority of the patients were young men between the ages of twenty and thirty years, although there was a goodly number of women and children. In every case the procedure was well tolerated, and none of the patients complained of pain on the next day, although several were suspended for considerable lengths of time.

Clinically the cases fall into two main groups; those with tuberculous laryngitis and those with papillomata. Several of the tuberculous cases were operated in twice, but most of them were curetted only once. All cases with ulcers or granulations were curetted thoroughly and the clean bases rubbed with lactic acid or iodoform powder. The infiltrations were cauterized with the galvanocautery.

There was a rise of temperature following the curettement, usually of short duration. Killian remarks that his tuberculous patients tolerated morphine scopolamine injections much better than they did general anesthesia. Bleeding was easily controlled.

Papillomata of the larynx occurred mainly in children. They lend themselves readily to this method, and the growths can be removed quickly and completely and in fewer sittings than with the ordinary direct method.

Beside these two main groups, Killian's cases include two cases of difficult decannulization, and one each of polypi on the vocal cords, pachydermia, and lupus. The latter was treated by curettement. The above mentioned case of pharyngeal fibroma was operated in after the publication of his paper.

My observations lead me to believe that in suspension laryngoscopy we have a procedure which broadens appreciably the scope of laryngoscopy. A method that in its infancy has already revealed so many possibilities can be accorded a brilliant future. It is very probable that the instrument and the technic are by no means perfect, and that the near future will reveal improvements in these directions. At all events our observations have convinced us that Killian's suspension laryngoscopy

will be as important to the laryngologist as cystoscopy has become to the surgeon.

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2. IDEM: *Berliner klinische Wochenschrift*, xlix, 581, 1912.
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616 MADISON AVENUE.

INFECTED KNEE JOINT.*

Two Cases of Drainage without Subsequent Ankylosis.

BY HARLAN SHOEMAKER, M. D.,
Shelby, N. C.

Several theories have been advanced recently which materially alter our previous conception regarding drainage of cavities lined by endothelial cells. Dr. John B. Murphy, of Chicago, is the chief exponent of the theory which is based upon his observation of natural phenomena, that a large joint, if but exposed to the air for any length of time and not necessarily traumatized or infected, is most likely to become, through the drying and ultimate destruction of these same delicate endothelial lining cells, the seat of ankylosis. In considering this theory from a practical point of view, two cases have been treated by me, in which the knee joint was exposed for a number of hours, as well as infected, without untoward results.

CASE I. A girl of eight years, as she was running around a corner of the house, hooked her knee on a rusty nail and tore the right knee joint open through the lateral ligament. The joint was searched by an unwashed hand and sewn tightly shut. Twelve hours later the child was brought to the hospital and the joint was reopened, a number of blood clots were washed out, and the lateral incision was again closed. Drainage was placed high up beneath the tendon of the quadriceps muscle and brought out through the fascia lata, high up and somewhat posteriorly. The foot was elevated eighteen inches and a straight posterior splint applied which extended from the ankle to the gluteal fold. No extension was used. In three weeks all suppuration had ceased and passive motion was begun by allowing the child to use her limb. In six weeks one hundred per cent. of motion had returned.

CASE II. Young man, twenty-two years, while sawing shingles, slipped and fell into the saw. The circular saw instantly removed the articular surface completely from the external condyle and travelled through the patella, chewing up the ligament of the quadriceps femoris, where the saw emerged from the patella. The popliteal vessels and nerves were not injured, but had a close call. Only one half of the articular surface remained on the femur. The patella was cut through obliquely, and consequently was drilled and wired with silver wire in two places. The ragged wound was closed by interrupted silkworm gut stitches. Drainage was carried out of the joint at its highest point beneath the quadriceps femoris tendon and through the fascia lata somewhat higher up the leg and more posteriorly. The limb was placed upon a posterior splint and the foot elevated eighteen inches.

Suppuration lasted four weeks. The result was better than I expected, three months after injury, twenty-five per cent. of motion was obtained, just through the ordinary exercise of walking. The boy now has a very serviceable leg. It might be noted that the articular surface which was removed by the saw, was brought to the hospital several days later, but could not have been used owing to the oncoming suppuration.

These two cases bring up the following points for discussion:

1. The endothelial lining of the joint can be exposed to air and recover its function. It was so exposed between six and eight hours in the second case.

2. The joint can be traumatized internally and recover.

3. The joint can be infected and recover.

4. The joint can be drained any length of time necessary, without materially altering its function.

5. The presence of pure silver wire does not necessarily, even in extensive suppuration, act as a foreign body.

There is no doubt that with sufficient exposure to the drying influences of the air, the endothelial lining of any of the serous cavities of the body will become materially modified, but that the exposure necessary to produce such a condition is greater than the time consumed by an operation is well illustrated by the foregoing cases.

What takes place in a serous cavity after traumatism and superimposed infection has been clearly set forth by Professor Adami. At first the joint weeps, and if the joint secretion were to be collected, it would be found to have a specific gravity of 1.010 or less, and contain one per cent. or less of albumen. This is a true hydremic condition and absorption will occur if let alone. A severer traumatism might produce a venous stasis within the joint, then the fluid from the joint would be found to have a specific gravity of 1.010 and contain about three per cent. albumen.

However, if the aspirated fluid from a serous cavity contains four per cent. albumen and has a specific gravity of 1.018, it will also contain cells and possibly bacteria. The condition becomes a surgical one, as the lymphatics will be blocked by so heavy a fluid, and while its watery portion may be absorbed, the detritus and fibrin will remain to form a foreign body. Consequently, while the conditions of our second conclusion (that the joint can be traumatized internally and recover), may be reduced by rest, elevation, and cooling lotions; those of our third (that the joint can be infected and recover), require surgical intervention to overcome a mechanical obstacle.

My method of operating on the knee joint is exactly the reverse of other methods in vogue, and is applicable to joints which have been opened by traumatism or by selection. In case of traumatism the original wound is always closed, and the joint treated as described. I make an incision through the skin at the upper level of the bursal sac, which lies beneath the tendon of the quadriceps femoris muscle. This bursa generally extends two and one half inches above the upper margin of the patella. This flap is then turned down, the joint opened through the external lateral ligament, ligating any anastomosing arterial branches, and the patella turned to the inner side. Flex the knee if better exposure of the joint is needed—the patella being dislocated internally and upside down by this flexion. With this exposure all balls of fibrin—the “joint mouse” of the Germans—can readily be removed.

With the reduction of the parts, the capsule of the joint is sutured laterally with a close running catgut suture which does not wound the endothelial

*Read before the North Carolina State Medical Society, Hendersonville, N. C., June 19, 1912.

lining of the capsule—a subendothelial stitch, and the deep fascia and skin are likewise closed. In event of traumatism, which would produce a transudate equal to the venous stasis just spoken of, with a specific gravity of 1.015, discretion would warrant carrying a drain out of the top of the bursal sac. Should the joint be infected, obviously the drain would be necessary. The drain should be a dependent one, and in the two cases in question it was carried higher up the limb and out of a buttonhole made through the fascia lata, well toward its posterior border. This method of drainage has several things to recommend it:

1. With the elevation of the whole limb, eighteen inches at the foot, the drainage of the joint becomes dependent.

2. With the flow of joint secretion all blood fibrin and cells and bacteria are washed out of the joint through Nature's efforts.

3. The adhesions which will naturally be formed by the irritation set up by a rubber tube on a delicate membrane, will be found at a place where they can do no damage. They cannot interfere with the mobility of the joint, and they will never be strong enough to restrict the motion of the tendon. At best these adhesions can only shorten the bursal sac. This is of no importance unless it must be used in subsequent operative procedure for a similar drainage. Silver wire, in my hands, has never acted as a foreign body when the drain was carried away from the wire. This gives Nature an opportunity to encapsulate the wire.

Surgical drainage of the knee joint is not new. Barker, writing in the *London Practitioner* for February, 1910, uses Bier's hyperemia treatment early, and if that fails, he aspirates the effusion, makes a smear, and if bacteria are present, he opens and drains the joint. He fails to state his method of drainage. B. Riedel, *Deutsche medizinische Wochenschrift*, Berlin, 1910, drains the knee infected with purulent arthritis, back of the condyle or through the popliteal space. This is certainly a dependent method, but it may leave fibrin deposited between the articular surfaces (Adami states that floating bodies in the joint are collections of fibrin from joint effusion), and it has the added danger of injury or thrombosis by extension of the inflammatory action to the great vessels. A neuritis might develop from a similar reaction.

The kind of bacterial activity does not alter the treatment. Gonorrheal infections should not be allowed to bring about the deformity of a stiff leg any more than should any other organism. If a stiff leg is inevitable, it should be a straight leg.

In the mobilization of the knee, Klapp (*Zentralblatt für Chirurgie*, August, xxxvi, 1143) mobilizes the knee by the interposition of soft parts after breaking up the ankylosis. In the first place, it is doubtful if ankylosis need exist, and if it does, the introduction of a lubricant, such as deflocculated graphite, would more successfully insure a mobile joint than the eburnation of any animal membrane. It has the advantage that it can be reintroduced into the joint. Bismuth pastes have proved poisonous.

In conclusion, I should say that with dependent drainage, elevation is most important. It is the

Fowler position of the leg. I never use extension for the same reason that I would not interpose an animal membrane between the articular surfaces. With extension, the relaxed joint is separated, and fibrin is deposited between the articular surfaces, with a sure guarantee of ankylosis. The joint membrane is so constructed that it can bear the weight of the body without injury, and, furthermore, it can bear the weight of the leg indefinitely, without becoming diseased through pressure.

In reviewing this simple treatment for an infected joint, I have two main objects in my method of treatment; first, the relief of the infected condition; and, second, the restoration of function. Under the first condition, the infection is relieved by rest on a splint, elevation of the foot, and dependent drainage as described. So far as I am able to observe, the joint is not exposed to air with drainage carried such a distance from the joint. Under the second condition, the patient is placed in the ambulatory position with a posterior splint and allowed to walk, with the splint as protection against any unusual effort, until all soreness has left the limb and joint, at which time the splint can be laid aside.

A CHEAP AND EFFICIENT ELECTRIC HEADLIGHT.

By JEROME WAGNER, M. D.,
New York,

Clinic Assistant in Surgery, Polyclinic Hospital; Assistant Surgeon,
Department of Proctology, Cornell University Clinic.

There is no headlight on the market to-day that can be purchased for less than five or six dollars, some instrument makers asking ten or twelve. The one I describe below cost me less than two dollars

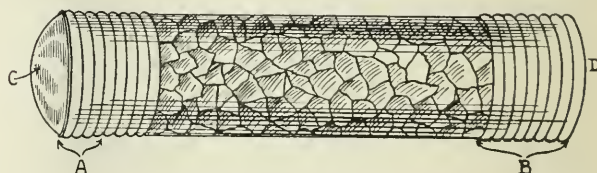


FIG. 1.—The ordinary pocket flashlight, parts A, B, and C alone are used. These flashlights come in different sizes; the smaller ones costing but ninety cents are most desirable, bringing the cost of the lamp to less than two dollars.

and fifty cents, and no doubt could be obtained for very much less if a smaller light is sufficient. The light can be operated from a single dry cell or from a rheostat. This is of great advantage, inasmuch as many of the homes we visit are not equipped with electricity, and it is most inconvenient to carry a six or eight cell battery, which most other headlights demand. The cell for my headlight can readily be carried in a vest pocket; the light proper takes no more room than the ordinary mirror on a head band. Every physician has a head band with a mirror, and two dollars or less can replace the mirror with an electric light.

Fig. 1 shows an ordinary pocket flashlight, which can be purchased at any electrician's for \$1.50 for the large size, down to ninety cents for the smaller sizes. Parts A and B in Fig. 1 are detached from the flashlight and screwed together; part A containing the lamp, a one volt tungsten, and a powerful convex lens. A connection is then made through

the back of part *B* with a silk wire of any desired length (mine is six feet long). At the end of the wiring attach two pin poles which will fit any rheostat or the poles of any dry cell after the latter have been inverted at their ends so as to grasp the two poles of the wire snugly.

A flat piece of tin about one half inch wide is then fitted about the connection at *D* (Fig. 2) to which is attached a short rod about one half inch long with a ball at the end. This will fit in the

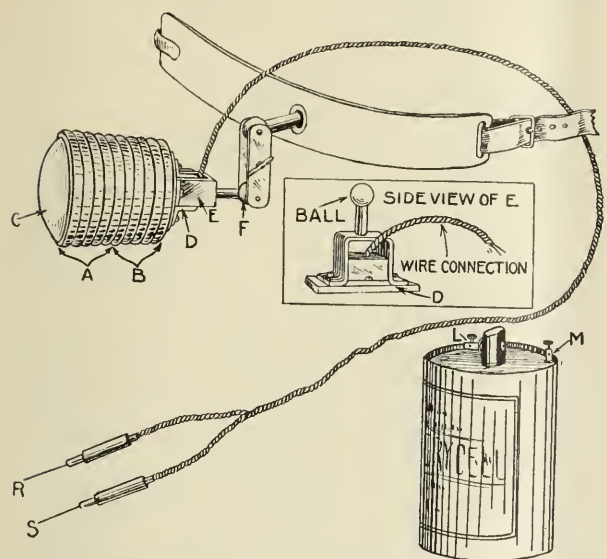


FIG. 2.—*A*, *B*, and *C*, part from flashlight; *D*, connection with wiring; *E*, piece of flat tin around *D* and supporting *F*, the ball to make a swivel joint; *L* and *M* show how the poles of any dry cell can be inverted so as to hold the pin poles, *R* and *S*.

joint formerly occupied by the mirror, in any headband. The light is now complete, with an outlay of about seventy-five cents to an electrician for soldering the connection, wiring, and ball joint, twenty-five cents for a dry cell, and \$1.50 or less for flashlight, depending upon size one desires.

The lamp gives a powerful white light, the area of light depending upon distance from object. I maintain these advantages: 1. Cost is less than half that of the cheapest contrivance on the market; 2, it is as efficient as the most expensive headlights; 3, it is inexpensive to keep, a cell renewal costing but twenty-five cents, a new electric bulb the same; 4, there are no intricate parts to get out of order.

226 WEST NINETY-SEVENTH STREET.

Abstracts and Reviews.

VERTIGO; A CLINICAL AND THERAPEUTIC STUDY.*

BY RICHARD LAKE, F. R. C. S.,
London, England.

The type of vertigo to be considered is limited to the aural form, and the causes of this form of vertigo may be classified as follows:—

I. Peripheral causes. (a) Chronic progressive middle ear deafness. (b) Hemorrhage into the labyrinth, and embolism. (c) Traumatism.

*Summary of a lecture delivered before the Section in Otology of the New York Academy of Medicine, December 13, 1912, and of the ensuing discussion.

II. Aural vertigo due to altered state of the blood pressure. (a) Increased blood pressure. (b) Decreased blood pressure.

III. Aural vertigo due to systemic causes. (a) Leukemia. (b) Occasional. (c) Specific. (d) Anemic (cerebral anemia).

One of the two commonest causes of aural vertigo is the first, chronic progressive middle ear deafness. In this condition the diagnosis of the cause is relatively easy, for otological examination reveals the presence of chronic lesions of the middle ear. This form of vertigo is of purely peripheral origin; that is, it is due to some involvement of the peripheral vestibular nervous mechanism. General measures of local treatment should be tried, and if they fail resort should be had to operation. It is to be borne in mind that operation is not to be undertaken in cases in which the hearing is good, or even useful, because the operation always leads to complete deafness in the treated ear. The operation is now well known and has for its object the division of the vestibular nerve proximal to the semicircular canals. The results of the operation are immediate and certain relief. The dangers of the procedure are nil. In my series of some seventy cases presenting this condition for treatment it has been necessary to operate in only fourteen. All of these proceeded to recovery after the operation without difficulty and in all the vertigo was immediately and permanently cured. Emphasis should be laid upon one feature in the operative treatment of this condition, and that is the adoption of *antiseptic* rather than *aseptic* surgical measures. This is essential because of the intimate connection existing between the middle ear and the throat via the Eustachian tube. It is my belief that, although the strictest asepsis may have been observed in the course of the operation, subsequent infection of the region from the Eustachian tube is almost unavoidable.

Cases due to labyrinthine hemorrhage or embolism are far less frequent than are those due to the condition just described. These cases should all be tried on a thorough course of treatment with large and ascending doses of pilocarpine. This treatment should be continued for a period of two weeks. It is seldom, if ever, necessary to operate in this class of case.

In the traumatic cases the vertigo rarely lasts more than six months. General measures of treatment are usually fairly successful. Two of the common but little recognized causes of this form are the presence of plugs of cerumen and the effects of violent nose blowing. A characteristic feature of these cases is the persistence, after the disappearance of the vertigo, of an inability to walk in the dark. This may be attributed to the presence of a vestibular neuritis.

The second great group of causative factors, altered blood pressures, includes the next largest number of cases. In the cases with increased pressure arteriosclerosis plays an important part. Here, again, the lesion is peripheral in the vestibular nerve. These cases tend toward recovery from the vertigo spontaneously in many instances. Such recovery is due to the gradual destruction of the vestibular nerve and is associated with complete deafness in the affected ear. A peculiar feature of these

arteriosclerotic cases is the tendency of the attacks of vertigo to come on in the early morning. The most logical explanation for this seems to be that at this time the circulation is at its lowest ebb and it is insufficient owing to the increased peripheral resistance of the thickened vessels. Treatment in this group is quite successful and consists in the use of either quinine and hydrobromic acid, or of potassium iodide.

Those cases in which the blood pressure is below normal show one characteristic feature, namely, a greatly increased vertigo on rotation. The indication for treatment is obviously to restore the blood pressure. This is best accomplished by the continuous exhibition of a trustworthy preparation of ergot. Operation should not be considered unless thorough trial of this treatment fails. In these cases the lesion is probably not wholly peripheral, there being some central factor in most of them.

In the third class of causes the cases which are due to leuchemia or pernicious anemia are not amenable to treatment. Among the most frequent of the occasional causes is gouty dyspepsia. Its relief effects the disappearance of the vertigo. Specific disease, syphilis needs no discussion. Cerebral anemia, when a cause of vertigo, leads to a fairly typical symptom complex. There is vertigo, a sensation of surface warmth, flushing, and sweating. These same symptoms are said to be associated also with seasickness. In this class of cases the trouble is obviously of central origin, lying within the brain.

In closing, emphasis should again be laid upon the fact that operation is seldom needed and that when it has to be done it is practically free from any danger to the life of the patient. It causes immediate and permanent relief of the symptoms, but also brings about permanent deafness.

DISCUSSION.

Dr. Charles L. Dana regarded all vertigo as vestibular in origin, but not always as aural. He then briefly reviewed the anatomical relations and distribution of the vestibular nerve to illustrate how numerous and varied the sites of disturbance might be. He said that it is a sensory nerve, irritation of which causes vertigo, just as irritation of an ordinary sensory nerve causes pain. The irritation might occur at any point in the wide ramification of this nerve and vertigo would be the result. Examples of vertigo due to causes other than aural might be mentioned, such as that associated with migraine, or coming on in place of a migrainous attack; the vertigo of epilepsy; or that frequently present in multiple sclerosis.

Dr. James F. McKernon agreed heartily with Mr. Lake with regard to the indiscriminate opening of the labyrinth. He also was in accord with the idea so well brought out that vertigo was only a symptom of some lesion. The caution not to operate in cases in which the hearing was good met with his approval. One of the more common occasional causes of vertigo, he thought, should be given as exostoses of the external auditory canal. Alcoholism was a direct cause of labyrinthine hemorrhage and resulted in ultimate total deafness. He thought that the use of pilocarpine should be continued for six weeks rather than for only two. As

to the safety of operation, he could not agree with Mr. Lake, for he thought that it was not, by any means, devoid of danger. He would suggest, further, in the treatment of the arteriosclerotic cases with high blood pressure, that spirit of nitroglycerin be added to the list of drugs already given by Mr. Lake.

Dr. E. B. Dench said that vertigo from chronic progressive middle ear disease could be cured, in many cases, by the local use of pilocarpine. Operation on the middle ear with extraction of the ossicles and puncture of the oval window also gave good results in many cases. In the cases with increased blood pressure careful otological examination, he thought, would reveal the presence of some middle ear lesion, and that the blood pressure was a second factor only. Successful treatment of these cases should take both of these factors into consideration.

Dr. Philip Hammond, of Boston, said that there was an apoplectiform type of vertigo from increased endolabyrinthine pressure. He thought that otosclerosis in the region of the oval and round windows prevented the accommodation to variations in pressure. The suddenness of the attacks was due to the sudden change in pressure within the labyrinth. This change was not necessarily due to an increase in the pressure, but might well be the result of a diminution. The outflow of the labyrinthine fluid was partly by percolation, through the bony walls of the labyrinth. Otosclerosis stopped this, and it was quite possible that the fluid might become absorbed with a resulting reduction in the endolabyrinthine pressure.

Dr. Percy Fridenberg spoke of the importance of the visual factor in causing vertigo and considered the remarks made by Doctor Dana to offer an explanation for this observation.

Dr. T. Passmore Berens thought that operations upon the labyrinth were dangerous.

In closing Mr. Lake said that in his hands labyrinthine operations had been entirely without danger. This he attributed to his employment of antiseptic measures in the course of the operation and during the after treatment. He used five per cent. solutions of phenol very popular in Great Britain, as an antiseptic.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXIX.—How do you manage chronic ulcers of the leg? (Closed December 16th.)

CXXX.—How do you treat subacute and chronic laryngitis? (Answers due not later than January 15, 1913.)

CXXXI.—How do you treat psoriasis, and with what success? (Answers due not later than February 15, 1913.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be award-

ed to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXVIII was awarded to Dr. Maurice Schneck, of New York, whose article appears below.

PRIZE QUESTION CXXVIII.

THE TREATMENT OF INFANTILE CONVULSIONS.

BY MAURICE SCHNECK, M. D.,
New York.

Before discussing the treatment of infantile convulsions it may not be amiss to state some of the causative factors underlying these attacks, as the treatment of these cases depends upon one or more of these etiological factors.

To begin with, the most predisposing causes are: 1. Those due to some demonstrable lesions of the nervous system, as birth palsies, hemorrhages, syphilis, hydrocephalus, tumors of the brain, meningitis, etc. 2. Those due to nonspecific lesions of the nervous system, as epilepsy, spasmophilic diathesis, hereditary tendencies. 3. Those due to various (a) external poisons, such as ptomaine, drugs; (b) internal poisons, such as specific infections, intestinal putrefaction, and defective internal metabolism. The exciting causes are pathological factors of the alimentary tract, inflammatory or suppurative processes of the middle and internal ear, dentition, biliary and urinary calculi, etc.

One of the most difficult problems is to differentiate the various convulsive seizures of infants. The physician must therefore be guided by the history obtained from the parents, in order properly to learn the nature of the isolated attack and treat it accordingly. Bearing these facts in mind, the treatment of infantile convulsions resolves itself into: 1. Treatment of the attack; 2, prevention of the recurrence of attacks, and, 3, removal of the cause.

Treatment of the attack.—Upon arriving at a case of infantile convulsions, the physician must bear in mind that no time is to be lost in inquiring into the history, as a few moments may decide the fate of the infant; he should immediately proceed to urgent measures. The child should be placed in a hot mustard bath or what is more usually convenient, a mustard pack. This should be kept up until the skin becomes red. Hot compresses to the infant's body will give similar results. Should the attack continue, a few whiffs of chloroform or vapor inhalations will subdue it. An icecan to the head should be placed to allay cerebral congestion, if present, or irritation of the brain. I have never yet had opportunity to resort to a hypodermic injection of morphine because the foregoing procedure is sufficient and has proved to be successful in combating any convulsive attack, and, second, because the infant's nervous system is highly susceptible to the narcotic effects of potent drugs which may bring about deleterious results. Always, even without any history of previous constipation, I empty the lower bowel by a simple enema of soapsuds and water, followed by a thorough

colonic irrigation of hot and cold water by means of a Kemp tube. As soon as the bowels have been emptied, chloral hydrate, at least eight minims of a two per cent. solution, together with potassium bromide, grs. v at a dose, is injected into the rectum, the injection being allowed to remain for some time. The drug always acts in from five to ten minutes, and the effect lasts for a few hours. The child is then placed in a quiet room free from any disturbance.

As soon as the attack is over, measures must be adopted to combat the overexcitability of the nervous system. Attention should first be paid to the diet, as this is of paramount importance. Food should be withheld for the first six hours. Then the infant can be placed on a tea diet, or older infants on oatmeal porridge without milk. The following day breast feeding (in small infants) should if possible be begun at once. It occurs sometimes that the child being placed to the breast is threatened with the return of convulsion; this indicates that the mother's milk is at fault and should be chemically and microscopically examined for a possibly too high percentage of proteids or fats. While the overexcitability, after it has once been removed by initial evacuations of the gastrointestinal tract, does not return if the child is kept on breast feeding, great care should be exercised in artificially fed babies. It is certain, from clinical observations, that the quality and quantity of food may bring on convulsions, also cause them to disappear. In the obese, overfed children the diet should therefore be cut down to the lowest limit. In feeble and anemic infants it is best to diminish the intake of proteids and carbohydrates in order to prevent the possibility of decomposition or putrefactive action in the intestines, thereby increasing, through their irritation, the excitability of the nervous system. In older infants, a farinaceous diet should be given for a few days only, when it should be replaced by a milk diet. In babies over two years, milk and soups in addition to a soft vegetable diet may be tried.

Should there be any indication of another threatened convulsion, feeding should immediately be suspended, a hot bath instituted, and a rectal suppository of antipyrine and extract of belladonna, of each gr. i; potassium bromide and valeriana, of each grs. v, inserted into the rectum once daily for a few days.

The treatment should now be directed to the cause of the attack. Careful search should be made for all possible sources of reflex excitations, and these should be immediately corrected. Not only should the history of the patient be obtained, but the family history is also important, as the significance of heredity has been fully demonstrated that children without any demonstrable weakness, but exhibiting a spasmophilic diathesis, are born of mothers who have themselves had spasmophilia in their childhood, and in some instances still present distinct latent symptoms. The infant should be placed on tonic treatment, thereby building and toning up the nervous system. It is not amiss to say that in a case of rachitis with nervous manifestations good results have been obtained from the

use of the phosphates in combination with codliver oil.

The facts to be borne in mind, then, are that convulsions in childhood almost always have a serious aspect. With proper care and attention to the history and aftertreatment, they may mean nothing more than an accidental complication of some underlying condition; on the other hand, they may be the beginning of a serious disturbance in the function of the growing nervous system with mental and moral deterioration, grave neurosis, or epilepsy as the ultimate result.

233 EAST FIFTH STREET.

Dr. Morris Ginsburg, of Philadelphia, states:

When called to a case of convulsions in an infant, I invariably take with me a bag containing chloroform, gauze, a hypodermic outfit, and if it occurs during the night, also a solution of chloral and bromide, a rectal tube, and some dry mustard.

A glance at the child establishes the diagnosis of convulsions; a few words from the parents tell of its duration and probably give a clew as to the underlying cause. The immediate treatment depends upon the violence and the previous duration of the attack. As a rule I place a few drops of chloroform upon a piece of gauze and hold it intermittently to the infant's nostrils, at the same time ordering the parents to prepare a mustard solution of one tablespoonful of mustard to one quart of warm water. If the withdrawal of the chloroform after several minutes' administration causes a resumption of the convulsion, I inject *per rectum*, by means of a catheter or rectal tube, a solution of chloral and bromides—from three to six grains of the former and from five to ten grains of the latter.

Counterirritation, in order to withdraw the blood from the internal organs and from the cerebrum, is my next thought, but I attempt to accomplish this with the least possible disturbance to the patient. Immersion of the infant in a tub, I have found to be unsatisfactory for that reason, and instead, I use a pack made by saturating a towel or sheet in the above mentioned strength of mustard solution, in conjunction with a mustard footbath. The pack is allowed to remain from ten to fifteen minutes, by which time the whole body surface is fairly red.

Morphine I have been rarely called upon to use, and then, usually in cases due to meningeal conditions, or where the heart action is such as to make chloroform or chloral rather dangerous. A hypodermic injection of 1/16 to 1/64 of a grain, repeated if necessary, seems to be without any particular danger, and even acts as a cardiac stimulant.

The convulsion over, I have the child placed at rest, head elevated, icebag to head, and I question the parents as to the onset and probable cause of the convulsion, also as to the previous history of the infant in regard to susceptibility to these attacks; the presence or absence of rickets, the diet, etc. I also take the temperature. The causes resolve themselves into several classes:

First of all we must consider that infancy itself, by virtue of the instability of the nervous system during that period of life, is a great predisposing factor. Add to this the various ailments, such as rickets, syphilis, malnutrition chiefly from digestive disorders, and the prevalence of some of the acute

infections, and it may easily be seen why infantile convulsions, as well as other nervous affections, among them chorea, enuresis, general restlessness and insomnia, are so frequent.

By far the most important of the exciting causes can be located within the gastrointestinal tract, resulting from overfeeding or from improper feeding. A colonic irrigation is therefore indicated in practically all cases shortly after the convulsions have subsided. The addition of asafoetida makes it more effectual. This should be followed either by castor oil or by fractional doses of calomel with a dose of oil at the end. At the same time, if high fever is present, antipyrine and a combination of bromides may be prescribed with advantage. Cases of this nature get well within twelve to twenty-four hours.

Convulsions may be the signal of the oncoming of an acute infectious disease—pneumonia, scarlet fever, or other, and here the general course of treatment outlined for these conditions should be followed, particularly that of elimination and reduction of temperature in the various ways. The cause for the convulsions is both the toxemia of the disease and the effects of the high temperature upon the nervous centres. Convulsions during the course of an attack of whooping cough or late in pneumonia are due to asphyxiation, and are very dangerous.

Various reflex causes are cited, including dentition, worms (rare in infants), phimosis, and other. These are much more liable to act upon infants predisposed to convulsive seizures, especially those suffering with rickets, but as a rule, the real exciting cause is gastrointestinal in nature, and it is here that we must look for relief. Between attacks, the infant should be given general dietetic and hygienic care with the aid of codliver oil, iron, and phosphorus.

Finally, convulsions may be caused by direct excitation of the brain substance. This is seen in meningitis, brain tumor, brain abscess, head injuries, and in epilepsy. In these conditions, chloroform is obviously not so applicable, and we must depend chiefly upon the bromides and kindred drugs, and finally upon operative procedures.

Dr. Carlisle P. Knight, of Ellis Island, N. Y., notes that—

Although there are numerous points in the etiology and many direct causes of infantile convulsions, the pathological conditions are practically the same in all cases. There is, in the height of the attack, severe cerebral hyperemia, overtaxed right heart, pulmonary congestion, and perhaps slight congestion of all the internal organs.

Called to treat a case of infantile convulsions, we should remember the main points in the pathology enumerated above, in order to treat the case intelligently. Regardless of the cause, the condition presented should be treated heroically and immediately.

There have been many drugs advised and tried in controlling convulsions, but I employ three standard remedies which can be depended upon; that is, chloroform, chloral, and mustard. There should always be in the emergency bag the first two mentioned, also two soft rubber catheters of

large size to be used as rectal tubes. Mustard being a household remedy, will usually be available. Without a doubt, chloroform is of the greatest immediate benefit, most rapid in effect, and may be used without hesitation, even in the youngest infant. Upon seeing the child in the attack, I would at once begin the use of the chloroform. Having started the administration of it and with the beginning arrest of the convulsion, the bowels should be emptied by the use of a soap-sud enema, carried up as high as possible with the aid of the soft rubber catheter, and recurrent washings used until all the contents have escaped and the returning water becomes clear. A very handy contrivance may be made for the return flow washings by attaching a catheter to a fountain syringe and then inserting it into the rectum. At the same time another catheter should be inserted alongside of the first and held in position by an assistant. Having cleared the intestine of its contents, we should now give chloral (about eight or ten grains for a child two years old), dissolved in milk or some warm liquid, per rectum. This should be inserted as high as possible in order to be absorbed quickly, and prevented from escaping by pressing together the buttocks. The effect of this drug is noted in about fifteen or twenty minutes and may be repeated in forty or forty-five minutes if necessary. To relieve the internal congestion, I have found it best to put the patient in a hot mustard bath, immersed up to the shoulders, while on the head an icebag should be placed. The bath serves another purpose, in that it keeps the mother busy and thus diverts her attention, and gives the physician more control of the situation. The bath should be continued until the skin is of a healthy red glow.

After removal from the bath, if the temperature is very high, the icebag should be continued and alcohol rubs given about every hour until the temperature is reduced. I believe the alcohol rub (alcohol and cold water equal parts), rapidly applied with a sponge, is far more effective in reducing the temperature and quieting the patient than the cold water bath which necessitates undue handling, and which is not borne well by most children. Also the average layman does not know how to give the cold water bath intelligently. Many have recommended the use of morphine in treating convulsions, but I have never employed it, because I have never seen the indication for it, where chloroform or chloral could be obtained. The uncertainty of its action in young children makes it objectionable.

When once the convulsion is under control, a return attack may be prevented by keeping the patient under the influence of chloral or the bromides. Calomel, given in one tenth grain doses until a movement occurs, to produce purgation, to deplete the bowel, and to keep the portal circulation free, is advisable. Where convulsions have been frequent, there is more or less exhaustion which must be treated. For this the system should be supported by rest in bed, an appropriate diet given, and stimulants used as indications required.

After the attacks have ceased, it is now all important to unearth the underlying causes which have produced the attacks, and to remove them.

(To be continued.)

Therapeutical Notes.

Treatment of Gastric Disorders.—W. H. Willcox, in the *Medical Press and Circular* for July 17, 1912, lays stress on the advisability of physical rest in gastric hyperacidity. The diet should be readily digestible and citrated milk, or milk containing one drachm of sodium bicarbonate to the pint, freely administered. The following preparation may be given one hour after each meal:

℞ Bismuthi subcarbonatis, { āā grs. x;
Magnesii carbonatis, .. }
Sodii bicarbonatis, ...grs. xl;
Aque chloroformi, ...q. s. ad f3i.
M. ft. solutio.

Sometimes the use of olive oil in tablespoonful doses before meals is useful. Spiced food, all condiments, and soups or meat extracts should be avoided.

In chronic atonic dilatation of the stomach the author advises rest in bed for a few days. The stomach may be well washed out and emptied at the start, and the patient then fed on citrated milk to which eggs, beaten up, have been added. In the first twenty-four hours the quantity of fluid ingested should be limited to one ounce every hour; later the amount may be gradually increased. When the stomach has regained its tonicity and diminished in size, light, easily digestible solids may be given; but big meals must always be avoided. Fluids had best be taken only between meals. Massage of the abdomen is of value. The following nerve tonic may be administered three times daily after meals:

℞ Strychninae sulphatis, ...gr. 1/25;
Tincturae cardamomi compositae, ...f3ss;
Acidi hydrochlorici diluti, ...m℥x;
Aque chloroformi, ...q. s. ad f3i.
M. ft. solutio.

Lactic Cultures in Intestinal Disorders.—E. I. Harrington, in the *New York State Journal of Medicine* for February, 1912, divides into three classes the cases in which he has found lactic cultures useful: 1. Cases of intestinal indigestion and autointoxication associated with marked putrefactive changes, odor, and indicanuria, and with indolacetic acid absent or in small amount only. In this form of indigestion the cultures—pure, fresh cultures of *Bacillus bulgaricus*, grown in a private laboratory—proved almost always curative, without other medication except cathartics. The dose used for adults was from three to four teaspoonfuls of the liquid culture three or four times daily, according to the severity of the case; the best method of administration was found to be in sweetened water before meals. The diet to be prescribed in these cases is described as follows: Meat and eggs in limited amount, once daily; buttermilk and milk are desirable provided they contain no preservative; fruits and sweets to be taken freely, as well as cream, butter, bacon, and gelatin; if the starch digestion is good there is no objection to vegetables.

2. Cases of intestinal indigestion in which it is believed that the dominating organism is the colon bacillus or other allied type. In this variety the movements are seldom offensive, though there is a varying amount of abdominal pain, tenderness, and

distention. There is indolacetic acid in the urine; indican may be present, but is oftener absent. Nervous symptoms, such as tremor, insomnia, feelings of apprehension, and nervous exhaustion, are characteristic of severe cases. In these patients, the results of treatment with cultures were not so good as in the first class, and more time was required to obtain favorable effects.

3. In enterocolitis of infants. Here the lactic cultures were found by the author always to lead to recovery, except in cases so far advanced as to be within one day of death—a period too short for the cultures to act. Babies of any age, even only three weeks old, were treated in this way, the cultures being given in doses of one teaspoonful every six hours, or a half teaspoonful every three hours, in a little water with milk sugar. Beside the preliminary dose or two of castor oil, no drugs were given except lime water or calcium carbonate. Antiseptics are especially to be avoided, as they counteract the growth of the lactic bacilli and annul the effects of the treatment. As for the diet, whey, diluted according to age, is best; later, milk is added in increasing amount. For older babies barley water or other cereal water with milk sugar may be added. It is essential that the milk used contain no preservative, and where such is not surely the case, the diet will have to be limited for one or two days to barley or other cereal water with lime water and milk sugar, after which, as the case improves, a little condensed milk is added. In breast babies the milk was usually continued from the first and the cultures given between the feedings. It was found unnecessary to use rectal or colon washings in conjunction with the lactic culture treatment.

Treatment of Alopecia areata.—R. Horand, in *Lyon médical* for August 18, 1912, reports a severe case of alopecia areata, rebellious alike to applications of mercury bichloride, pilocarpine, croton oil, etc., as well as to the use of a constricting band and to internal medication, in which exposures of the affected areas to the ultraviolet rays, by means of Kromayer's lamp, gave good results. These rays induce pronounced and prolonged cutaneous hyperemia. They are both more active and safer than the x rays, which are capable of causing permanent alopecia through atrophy of the hair follicles.

Treatment of Disturbances at the Menopause.—Plicque, in *Bulletin médical* for June 15, 1912, observes that purely hygienic measures will in most cases largely overcome the various "congestive" symptoms at the climacteric. Physical exercise, especially walking, is very valuable; while walking in the open air is to be preferred, walking in the house, in conjunction with the household duties, is by no means useless. For the prevention of insomnia the patient should be advised never to retire until at least two hours have elapsed since supper time and to walk around as much as possible during that time. The evening meal should be light and should not include any meat. The quantity of fluid taken should be reduced to half a pint. At other meals vegetables and fruit should chiefly be taken, especially during the "congestive" periods, though well cooked white meats are also permissible.

Skim milk often proves more acceptable than whole milk.

As derivative measures, hot foot baths, dry cupping, rubbing of the congested region with turpentine or ammonia liniment, careful massage and the use of the faradic current are of chief value. Internal derivation by drugs such as aloes is to be avoided except in obstinate cases. Sedation by means of bromides, monobromated camphor, or valerian, is useful in all cases where repeated nervous attacks occur. Asafetida may with advantage be given in the following combination, originally recommended by Debreyne:

R Camphoræ, }
Asafetidæ, } ãã 0.10 gramme;
Extracti belladonnæ foliorum, ...0.02 gramme.
Ft. in pil. No. i. Da tales No. lx.

Of these pills, from two to six may be administered daily; where the latter number is given, the amount of belladonna in each should preferably be reduced one half. Of special value, especially in cases of artificially induced menopause, is the administration of dried ovarian substance in cachets or tablets each containing 0.1 gramme; of these five may be given daily.

Drug Treatment of Edema.—J. L. Miller, in the *American Journal of the Medical Sciences* for July, 1912, reports an investigation of the effects of digitalis, theophyllin, strophanthin, and Fisher's solution in various forms of nephritis associated with edema. In eight cases of chronic interstitial nephritis with broken cardiac compensation, digitalis preparations caused marked diuresis only in one instance, though dyspnea was considerably relieved. Theophyllin, on the other hand, given in capsules in doses of 0.25 gramme daily, gave good results, only one case failing to react to it. Diuresis was marked within twelve to eighteen hours, reached its maximum generally within forty-eight hours, and continued until the drug was stopped on account of nausea or until edema had largely gone. Where dyspnea was present, it was only moderately relieved. Intravenous injections of strophanthin, 0.75 milligramme at a dose, were given in ten cases. After one injection only a very moderate diuresis developed, but this continued for several days, the edema meanwhile gradually decreasing. Dyspnea was greatly lessened. In several instances, by repeating the injection about once a week the patient was kept reasonably comfortable when other forms of treatment, such as sweats, laxatives, and digitalis had failed to give even temporary relief.

A case of acute nephritis with edema reacted well to theophyllin, but of four cases of acute exacerbation of chronic parenchymatous nephritis only one showed diuresis, even after several days' use of the drug. Digitalis, strophanthin, alkaline diuretics, and Fisher's solution (prepared by dissolving eight grammes of crystalline sodium carbonate and fifteen grammes of sodium chloride in one litre of water) were tried in these patients, but had little or no influence on the urinary excretion. Miller concludes that failure of the kidneys to react to theophyllin indicates a very grave disturbance, as the four patients of chronic parenchymatous nephritis, in whom it proved ineffectual, all died within two weeks.

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PRESENILITY, A PROBLEM IN PREVEN- TIVE MEDICINE.

As an example of the increased efforts of modern medical men along the line of preventive medicine, the investigations now being carried on with the view of finding means and methods for the prolongation of life and the prevention or amelioration of old age infirmities, are praiseworthy. At least one medical faculty has recognized the importance of this subject by inaugurating a chair and course of study in geriatrics. Old age is not only an important medical question, but a far more important economic problem, because old age carries with itself an incapacity which makes its victims charges on the public, or burdens and handicaps to some individual.

Yet it is not so much a problem of the prevention of old age and its infirmities to the individual concerned, and of its burdens on the public, because we are prepared to expect dependence of the aged, as it is the tendency to *premature* senility in our strenuous civilization. Against this condition we have at the present time made no preparation, partly because it is still a new problem, though it is becoming more common every day. Individuals of whom we still expect activity are young in years

though old in body, and of little use physically. While climatic conditions, such as those encountered in the hot countries, are conducive to rapid decay, as well as the chronic exhaustive diseases, these conditions do not interest us so much as the premature old age found in the absence of these conditions as the result of the high pressure mode of living in the more advanced communities, following upon the keen competition everywhere. People now believe that only youth can enter the lists, and the period of successful competition and efficiency is very short. Large employers recognize the inefficiency, comparative at least, of age and refuse new employment to men past middle life. The result is that every one tries to crowd all the work he can into this period, in order to live in ease when his efficiency is impaired. In many instances overwork in early life is born of a desire to retire as early as possible to a life of ease, rather than an easy life. To carry this out, however, means to make the pace that kills. When such men retire, they retire old in fact though young in years, little able to enjoy the life for which they worked so hard. Less strenuousness, a slower, surer mode of living would be far more economical of life. Hurred living acquires such a momentum that stopping is hard, if indeed possible. In fact, many now realize that they must remain in the saddle if they are to continue life at all. Their mentality is kept alive only by the stimulus of their bodily activity—and these are likely to cease working at the same time. To stop means to fall. It is a common sight to see hard workers of prominence die as soon as they attempt to retire.

The symptoms of presenility are the same as those of senility, except that mental acuity is not so much impaired in the former. A middle aged man showing the signs of old age, an atrophic and flabby condition of the skin, with such physical signs as heightened blood pressure, usually accompanied by more or less hardening of the arteries, small and sluggishly reacting pupils, and beginning arcus senilis, is to be considered in the class of the prematurely aged, even if no definite somatic changes can be found. In its pathology presenility is merely an early replacement of parenchymatous tissue with fibrous. When such minute organs as the capillaries are affected it means throwing many of them out of the circulation and an increase of blood pressure in the circulatory system. "A man is as old as his arteries" is a sound maxim. When fibrosis is far advanced and well organized nothing can be done in the way of remedy.

The prevention of presenility lies in the abandonment of the doctrine and practice of the strenuous life, and in the substitution of the simple life. Try-

ing to do life's work in too short a period is not, in the long run, economical of time. Still, to ask people to live at a slower pace is almost to invite atavism. A more easily accomplished method of prevention, and certainly more acceptable, lies in the adoption of regular periods of vacation, or periodic relaxation; during such periods the metabolic processes have a chance to recoup. Specifically speaking, the young connective tissue elements thrown out in a reparative effort will be absorbed, because no longer needed, and before they are so much organized that this becomes impossible. Indeed, the vacation system is the creation of the modern strenuous life; it is an example of necessity being the mother of invention. Every one should, in the language of the sea, be laid up occasionally to prevent too much wear and tear.

THE STATE NURSES' ASSOCIATION AND HOSPITAL TRAINING.

In its recent annual meeting at Utica the New York State Nurses' Association recommended that its members take action during the next session of the Legislature to have the Nurses' Practice Act so amended as to render State registration of nurses compulsory and to debar from practice all nurses who have not had institutional—that is to say, hospital training. While casual consideration of the proposed amendment suggests that its adoption might prove advantageous, a deeper analysis of the ultimate effects of the amended law shows clearly that the favored nurses and the rich would alone profit by it, while people of moderate means and the poor would suffer. Moreover, it would debar from an honorable living thousands of faithful women who, though unprovided with hospital experience, are nevertheless well trained in the theory of nursing, and, under the guidance of the physician, soon become highly efficient—and this without, we might add, losing what is now too often lacking in the hospital trained nurse, the sympathetic gentleness which all sufferers crave.

Before the New York State Nurses' Association can convince us that the amendment they demand is for the public good, they will have to demonstrate, first, that the State is supplied with a sufficient number of hospital trained nurses to meet the needs of all sufferers therein requiring such aid—which we know is by no means the case; second, that in order to provide for the vast majority of patients, the small wage earners and the poor, who are now provided for by those of their sisters who have not had institutional training, an adequate number of hospital trained nurses will give their care for a moderate sum, say eight to fifteen dollars

a week. If they cannot meet these requirements the amendment proposed, were it adopted, would prove a public calamity.

THE CRISIS IN PNEUMONIA.

One of medicine's great mysteries is the crisis in pneumonia; physicians since Hippocrates have been puzzled how to explain this clear cut change about the seventh day; a change generally salutary, but which often bears no apparent relation to the pulmonary lesion or to the patient's general condition.

Eggers found, in most of the cases of lobar pneumonia he studied, increased antipneumococcal power, greatest as a rule at the crisis or just after it, and lasting thereafter for variable periods; to him the antibodies seemed, in part at least, to be opsonins, whose activity could be manifested in proper circumstances, even in organisms with some degree of resistance. The cases in which this apparently characteristic increase of antipneumococcal power did not occur, presented irregularities either in course or in termination.

Cole, in setting forth work by himself and his colleagues in the Rockefeller Institute, finds that the main attempt to explain the crisis, as well as recovery by lysis, has been to demonstrate antibodies in the blood serum. Neufeld's experiments, instanced by Cole, have shown an increase in immune substances in the blood of patients upon recovery from pneumonia. Neufeld obtained his results by testing the protective power of the serum for mice against a known lethal dose of pneumococci; and he showed that while normal human serum had no such protective action, the serum obtained from the patients following the crisis did have such action. While Strauss, Seligman, Klopstock, and others have not confirmed these results, Dochez's work confirms that of Neufeld. To Cole it seems that the crisis in pneumonia is still an obscure phenomenon; "and at the present time it cannot be stated whether it represents a destruction of the bacteria, a neutralization of the poison, a kind of anaphylactic shock, or a combination of all these phenomena."

Dochez, in seeking to elucidate the problem of the pneumonia crisis, has inoculated white mice with the serum of recovered pneumonia patients; and his results seem to show that some sort of protective substances is usually present in the blood of those recovering from this grave general infection. It seems that the appearance of these protective substances, when demonstrable in the blood, coincides rather sharply with the period of critical fall in temperature and the disappearance of the pneumonia symptoms. These substances are found

only at or after the crisis; and they may afterward reach a considerable concentration. In certain instances they cannot be demonstrated at any period of the disease. Experiments in which serum can be tested against an homologous strain of the pneumococci, yield in most cases evidence of the presence of the protective bodies; whereas whenever shock cultures are used the serum as a rule shows no protection.

But how bring the development of this protective power into causal relation with the pneumonia crisis? The latter depends apparently on some single cause, some relatively simple reaction, such as the destruction of the bacteria by immune substances or the neutralization of toxins by antitoxines. If the blood of animals recovering from the disease constantly contained protective substances, we could reasonably assume that the crisis and recovery occur because of the development of such substances. And what is the nature of the immune bodies to which this protective power is due? Are they antitoxines or bactericidal substances or opsonins or bacteriotropins in the serum? Such questions, also, as whence these immune bodies come and why they develop, are yet to be solved.

STATISTICS OF TUBERCULOUS FAMILIES.

C. Leroux and W. Grunberg, in *Revue de médecine* for November, 1912, compare detailed statistics secured by them in 442 tuberculous families of the working classes with similar data relating to 126 nontuberculous families. As regards the number of children in each family, it was found that 282 children existed for every 100 families in which the parents were healthy, 288 where the mother alone was tuberculous, 327 where both parents were tuberculous, 380 where the father alone was tuberculous, and 450 where the parents were simultaneously tuberculous and alcoholic. The general infantile mortality was 17.75 per cent. in healthy families, 40.6 per cent. in tuberculous families, and 44.3 in families where tuberculosis, syphilis, and alcoholism were combined. The various causes of infantile mortality, including abortion, stillbirth, and infectious diseases all contributed to the increased death rate among the tuberculous. Where the father alone was tuberculous, the total mortality was 43.2 per cent., where the mother alone, 39.5 per cent., and where both parents, 49.1 per cent. Curiously, a study of thirty-seven families in which the grandparents alone were tuberculous, the parents being healthy, showed the very high mortality of 44.2 per cent. among the grandchildren, a fact which leads the authors to believe that the germ cell is influenced by heredity, even to the second generation, as in the case of syphilis. Detailed information as to the causes of death in the children of tuberculous parents is also given. In addition to the well known special tendency of these children to cardiovascular weakness, there appears also to be a predisposition to pulmonary diseases

in general, since the proportion of lung disorders among them was from thirty to forty per cent., compared with fourteen per cent. in the children of healthy parents. The existence of rickets of tuberculous origin is also supported by the statistics. The remedial measures advocated include protection of the pregnant woman against overwork and underfeeding and the destruction of premises infected with the tubercle bacillus.

THE PRESENT STATUS OF ROENTGEN THERAPY IN GYNECOLOGY.

Percy Shields, writing in the *Lancet-Clinic* for November 2, 1912, concludes from a study of Röntgen therapy that climacteric hemorrhage can nearly always be cured by the x rays, while dysmenorrhea and pruritus vulvæ are less amenable, many cases, however, receiving benefit therefrom. With proper regard for the age of the patient sterility can be produced by the proper and cautious use of x rays. Bearing in mind the much higher mortality of this method of treatment over the operative, myomata should under no circumstances be treated by the x ray, except when the patient refuses operative measures.

VENTROSUSPENSION OF THE UTERUS.

In this issue of the *JOURNAL* appears a very interesting article by Dr. J. Dawson Whittall, of Philadelphia. The doctor reports a case of ventrosuspension of the uterus with linen thread, and calls attention to the danger of this operation in a child-bearing woman, as the lower uterine segment and posterior wall become so thinned in the effort to compensate for the enlarging fetus that rupture of the uterus would be extremely easy, whether normally or instrumentally emptied. A Cæsarean operation became necessary in this case and no vestige of the suspension was found. If a ventrosuspension is done, catgut, not linen, should be used, as the latter will release itself if the woman becomes pregnant. We believe our readers will pay special attention to this very interesting report.

THIRTEEN.

It is difficult to read with a grave face the sentiments attributed by some of our daily journals to prominent thinkers in Europe over the supposed fatal influence of the terminal digits of the current year. Whether or not the European philosophers have really uttered the drivel attributed to them, there must be at least a reverent audience for that sort of thing or the papers would not give space to it. The physician has ever to bear in mind the small superstitions among his patients, yet need not combat them if they are harmless. If Oliver Wendell Holmes were to ask to-day his famous question as to how many of his audience had at the moment a horse chestnut in the pocket to ward off the pains of rheumatism, he would probably bring to light as many fetishes as he did forty years ago; not all "buckeyes" perhaps, but prophylactic to no greater degree. A really grave and scientific

answer exists to the thirteen menace of this twelvemonth, however; theological chronologists inform us that this is really the nineteen hundred and seventeenth year of our era, consequently all the dreadful things belonging to 1913 happened four years ago—as well as the good things, unfortunately.

Medical Law.

V. RIGHTS AND LIABILITIES OF THIRD PARTIES.

The liability of a railroad company for negligent and improper medical treatment received by its employees in a hospital maintained by it with contributions from its employees' salaries, appears from the rule applied by the Supreme Court of Wyoming, in the case of *Williams vs. Union Pacific R. Co.*, 124 Pacific Reports, 505, to be the same as that of a charitable hospital for similar treatment to a patient.

The admitted statement of facts before the court was "that the defendant (the railroad company) did not furnish the plaintiff with proper hospital accommodations in said hospital, and did not treat him properly therein, and did not furnish him the services of skillful or competent physicians or trained or capable nurses, and did not use or exercise due or reasonable care in the selection of such nurses and physicians and surgeons as were furnished to plaintiff." Upon the law applicable to this statement of facts, the court said: "With reference to cases of this character, it may be said that in general it has been held that a railroad company is not liable for negligence of its surgeons if it has used reasonable care in their selection. We think this is the correct rule." And later the court says: "It is also held that the duty of a charity hospital ends with the selection of capable surgeons and nurses." (Citing *McDonald vs. Massachusetts General Hospital*, 120 Mass., 432, and other cases.)

The statement of the character of treatment received by plaintiff from the physicians was, among other things, that the physician furnished, did, in the performance of the operation, "carelessly and negligently and unnecessarily cut a large hole in the neck of plaintiff's bladder . . . so that plaintiff's urine has ever since passed from him through his anus and always will thus pass." In commenting upon the legal effect of this allegation the court said:

The words "carelessly" and "negligently," as here used, are not synonymous with the word "unnecessarily." The latter negatives the necessity of cutting the bladder in the performance of the operation, while the former refers to the manner of doing, and not to the necessity of doing. The necessity of cutting the bladder in the performance of the operation rested in the judgment of the surgeon, and called into activity his power to perceive and perform (*Webster's New International Dictionary*), which was the measure of his skill. If, therefore, he performed an act unnecessary to the operation with or without negligence, such act would be attributable to errors of judgment or want of skill.

The court then quoted the following from the opinion in the case of *Akridge vs. Noble*, 114 Ga., 949:

From the time the surgeon opens with his knife the body of the patient until he closes the wound thus made in a

proper way, the law imposes upon him the duty of exercising not only due care, but due skill as well. During the entire time he must not only know what to do, but he must do it in a careful and skillful manner.

VIII. CIVIL MALPRACTICE.

In the case of *Dougherty vs. Soll*, 126 Pacific Reports, 924, the attention of the Supreme Court was directed solely to the question whether or not the evidence was such as to show the defendant to be guilty of malpractice.

It appeared that plaintiff, on June 25th, suffered a cut on his knee with an axe; plaintiff avers that at that time his patella was cut or broken. Defendant treated plaintiff, not for a broken patella, but for a cut, and insists that plaintiff did not then have a broken patella. About two weeks after plaintiff's injury he began to walk without the aid of a crutch or cane, and on several occasions he was seen walking some distance from his home with a natural gait, except that he limped slightly. About August 23rd he walked a quarter of a mile or more from his home, over a country road, to the house of a friend, where he attended a party; he there saw defendant and said that he was feeling fine.

Two days later plaintiff had a fall and again injured his knee. He then called defendant, who had not treated him for several weeks. Defendant found the knee swollen and applied remedies to reduce the swelling preliminary to further treatment. After a second treatment plaintiff stated that he was going to Seattle to attend school, and that he would consult a surgeon there, whereupon defendant gave him a letter containing a history of the case. The contents of this letter is not shown in the reported case. Plaintiff went to Seattle about September 2nd, where he called upon a surgeon who at first gave him some simple treatment, but upon the second call the surgeon decided that the patella was fractured and that an operation was necessary.

Mr. Justice Crow, in expressing the view of the court, said:

It seems to us that the vital question now before us is whether the patella was broken by the first or second accident. The trial judge found that it was severed by the stroke of the axe in June, a fact that the appellant should have then discovered, but did not discover, that appellant failed to treat respondent skillfully and properly, and that he should respond in damages for malpractice. . . .

We have examined the record with much care. It must be admitted that the evidence is conflicting, but we are convinced that it preponderates in favor of findings we now make to the effect that the patella was not severed by the first accident; that appellant's treatment of the injury then sustained was skillful, proper, and successful; that, under such treatment, the respondent had well progressed toward a perfect recovery, that the patella was fractured by the second accident; and that at no time had appellant been guilty of negligence, unskillfulness, or malpractice. We cannot enter upon a detailed discussion of the evidence, but will state that undisputed circumstances support these findings, which are also supported by the evidence of a number of skillful surgeons, as well as other witnesses not experts.

The judgment of the lower court was reversed and the case sent back with instructions that it should be dismissed.

In the case of *Coss vs. Spaulding*, 126 Pacific Reports 468, the question whether a physician was liable to a person for malpractice where he was employed by a third party was litigated.

In this case it appeared from the evidence that the plaintiff, a boy of twelve years of age, was run over by an automobile and the tibia of his right leg broken. The next morning the owner of the automobile, Mr. Purdue, called with the defendant, Doctor Spaulding. The mother's testimony describes what took place as follows:

My husband called up Mr. Purdue who said he would send his physician. The next morning he brought Doctor Spaulding down, and I stepped up, and he said, "I am Mr. Purdue, and this is my physician, Doctor Spaulding." Doctor Spaulding examined the leg, and felt it, and then I asked him if it was broken. He said, "No; it is not broken." I said, "No bone trouble there at all?" He said, "No." I said, "I can feel the bones move." He said, "No; you can't feel the bones move; if you could feel them, I could."

Then he examined the leg again, and still insisted it was not broken. . . . He gave me a prescription for liniment, and told me to get antiphlogistine and put that on to get the soreness out. He said the leg would be all right in a few days. I got the prescription filled, and used the liniment as directed. He came again December 11th. . . . I said, "The boy's leg is broken." He said, "Oh, no; it isn't broken; the child's leg is all right."

On cross examination she said:

After the doctor said it was not broken, I thought he was a doctor, and knew what he was talking about, and I thought it was not broken. . . . I thought Doctor Spaulding had the case. I thought Mr. Purdue put him on the case, and, of course, he was the physician on the case, and I didn't consider it necessary for me to say anything about it.

The testimony of the plaintiff regarding what was said and done by the defendant on each occasion when called to see plaintiff was substantially the same as that given by his (plaintiff's) mother.

Doctor Beer, who is a practising physician and surgeon, was called as a witness, and testified that he performed an operation on plaintiff about January 15, 1912; that "the operation was to unite a faulty union of the tibia of the right leg. In making this operation, separating the bones and reuniting them properly, it was necessary to make an incision and expose the bone and the union. The (x ray) pictures, Exhibits 1 and 2, fairly represent the condition of the bones as I found them before the operation was performed."

In answer to certain hypothetical questions, containing an enumeration of the facts testified to by the witnesses regarding the extent of the injury and the appearance of plaintiff's leg at the time defendant examined it and the length of time that had elapsed after the accident before the examination was made, Doctor Beer said:

I think a physician, with due care and attention and consideration that he should give to a case of that kind, could easily determine the condition that was present in that case. I can hardly understand, with a boy of his age and physique, how it could be overlooked, if a man had given it proper examination. Notwithstanding the swelling, I think the injury should have been discovered. . . . If a man would use due diligence in his examination, he should have discovered it.

At the close of plaintiff's case, on motion of defendant, the case was dismissed. Upon an appeal to the Supreme Court, defendant urged (1) that the evidence fails to show that the relation of physician and patient existed between plaintiff and defendant; and (2) that neither negligence nor unskillfulness on the part of defendant in his treatment of plaintiff was shown.

Mr. Justice McCarthy, speaking for the court, disposed of these points with the following words:

Regarding the first proposition, we are clearly of the opinion, from the evidence adduced, that the relation of physician and patient existed. The defendant not only called upon and examined plaintiff for the purpose of determining the character and extent of the injury, but after the examination was completed he prescribed for plaintiff and gave directions to his mother, who was caring for and nursing him, regarding the treatment he should receive at her hands for the injury. . . . It is further contended that plaintiff cannot recover, because neither he nor any one authorized to act for him employed defendant to perform the services in question. It is conceded, however, that defendant was employed by Mr. Purdue, and that under the contract of employment he, on the occasion referred to, examined and prescribed for plaintiff's injury. The defendant, therefore, was under the same legal obligation to plaintiff to use ordinary care and skill in his examination and treatment of the injury as he would have been under if plaintiff or plaintiff's mother had employed him to perform those services. It is to recover damages for an alleged breach of this legal duty that this action is brought. The action, therefore, is not based on contract as the argument of counsel for defendant seems to imply, but on tort. Under the great weight of authority, the question of whether plaintiff, his guardian, or some third party employed defendant to perform the services is wholly immaterial. Even though a physician or surgeon renders his services gratuitously, he cannot escape liability for his negligent or unskillful treatment of his patient.

We are of the opinion, and so hold, that the question of whether the defendant used ordinary care and skill in his diagnosis and treatment of the plaintiff's injury should have been submitted to the jury.

The disposition of the case by the trial court was therefore set aside and the case sent back for a new trial.

News Items.

New Physicians in Pennsylvania.—The Pennsylvania State Board of Medical Education and Licensure on December 27th announced the names of seventy applicants who passed the recent examinations for license to practise medicine and surgery in the State. Forty-one failed.

Physicians' League of Brooklyn.—At the last meeting of this organization, the following officers were elected: President, Dr. Thomas Dixon; vice-president, Dr. Martin L. Bodkin; recording secretary, Dr. Charles Dumey; corresponding secretary, Dr. David Davidson; treasurer, Dr. Melvin Sheldon.

Pathological Library of Bellevue Open to Physicians.—Announcement is made by the general medical superintendent of Bellevue Hospital that the library in connection with the pathological department of the new Bellevue Hospital, corner of Twenty-ninth Street and First Avenue, is open for the use of all practising physicians.

Moving Pictures of Mental Diseases.—At the New York Academy of Medicine, on the evening of December 23d, Dr. T. H. Weisenburg, professor of clinical neurology at the Medico-Chirurgical College, Philadelphia, displayed a series of moving pictures taken by him during the past five years. These pictures showed in detail many forms of nervous diseases with their clinical symptoms and the different methods of examination. Doctor Weisenburg believes that moving pictures should be used as an aid to actual clinical demonstration in the case of rare operations.

Southern Surgical and Gynecological Association.—At the twenty-fifth annual meeting of this association, held in Old Point Comfort, Va., December 17, 18, and 19, 1912, under the presidency of Dr. J. M. T. Finney, of Baltimore, the following officers were elected: President, Dr. John Young Brown, of St. Louis; first vice-president, Dr. A. Morgan Vance, of Louisville, Ky.; second vice-president, Dr. Lomax Gwathmey, of Norfolk, Va.; treasurer, Dr. Le Grande Guerry, of Columbia, S. C.; secretary, Dr. William D. Haggard, of Nashville, Tenn. The next annual meeting of the association will be held in Atlanta, Ga., in December, 1913.

New Tuberculosis Hospital in Suffolk County, N. Y.—The Board of Supervisors of Suffolk County has voted to purchase as a site for the proposed county tuberculosis hospital a property consisting of forty-three acres, seven miles north of Patchogue. The price is \$4,000.

Decreased Mortality from Tuberculosis.—The mortality from tuberculosis in New York State, outside of New York city, shows a very substantial reduction during the first nine months of 1912, compared with preceding years. The number of deaths from pulmonary tuberculosis during the first nine months of the past year was 3,796, while in 1911 there were 4,076.

Personal.—As a testimonial of appreciation to Dr. William S. Thayer, of Johns Hopkins University, for refusing to accept an offer made him recently by Harvard University, his friends in Baltimore have had his features reproduced in two large bronze portrait medallions and about a hundred small ones. One of the large medallions was presented to Mrs. Thayer and the other will go to Johns Hopkins University.

Dr. Charles Milton Ford, for many years attending surgeon to the New York Children's Hospitals and Schools on Randall's Island, has been appointed consulting surgeon to these institutions.

An Extra Year For Medical Students in Philadelphia.—Announcement has been made by Dr. J. M. Baldy, president of the State Board of Medical Examiners, that hereafter medical students must serve a year as hospital internes after completing their college course before they can be licensed to practise. They may, however, substitute an additional year of postgraduate work, practically extending the medical course in all schools of the State from four years to five. The deans of all the principal schools and medical authorities generally are said to be in favor of the change, and the legislature will be asked to make this new requirement a law.

Erie County Medical Society.—At the annual meeting of the Medical Society of the County of Erie, N. Y., held on the evening of December 16th, the following officers were elected: Dr. J. F. Whitwell, president; Dr. J. V. Woodruff, first vice-president; Dr. A. W. Hurd, second vice-president; Dr. Franklin C. Gram, secretary; Dr. Albert T. Lytle, treasurer; censors, Dr. John J. Bonnar, Dr. Francis E. Fronczak, Dr. Arthur G. Bennett, Dr. Irving Potter, Dr. Lawrence Hendee, Dr. A. D. Carpenter; chairman of the committee on legislation, Dr. F. Park Lewis; committee on public health, Dr. Henry R. Hopkins; committee on Membership, Dr. Harry Mead.

Eugenics Investigations.—Mrs. E. H. Harriman has contributed \$1,000 and Mr. George F. Baker \$250 toward the salary and expenses of a eugenics field worker for Orange and Rockland Counties, N. Y. This work is to be carried on under the joint auspices of the Eugenics Record Office at Cold Spring Harbor and the New York State Charities Aid Association, which maintains county agencies for dependent children in these and eleven other counties in the State. A large amount of material relating to significant family histories is now on file in the offices of the county agents, and it is believed that if this could be supplemented by further investigation it would become of great value. Miss Florence Givens Smith has been appointed to carry on the work.

International Congress of Physical Education.—This congress will take place under the auspices of the faculty of medicine at Paris, March 17 to 20, 1913, thirty nations having been invited by the French government to take part. It is purposed to study the scientific principles underlying the physical education of school children and methods of improving national and individual physique, in order to learn how to battle successfully against mortality, depopulation, and their causes, principally alcoholism and disease. There will be seven sections of the congress: 1. Physiology of Physical Exercise; 2. Kinetitherapy; 3. Physical Education of the School Child; 4. Military Training by Gymnastics, Equestrian, Shooting, and Military Sports; 5. Games and Sports; 6. Touring, Mountain Climbing, Aeronautics, Yachting, Canoeing; 7. Sports for Women. An exhibition will be held during the congress, divided into five sections, as follows: Scientific, artistic, retrospective, sports, and industries. Special rates are obtainable from railways and steamships. Further information will be gladly furnished by Dr. Henri Dausset, adjunct general secretary, 41 avenue Montagne, Paris.

Gifts and Bequests to Hospitals.—By the will of Louis Schaefer, who died on November 26th, the New York German Hospital and Dispensary will receive \$2,000.

By the will of Peter Reid, who died in Passaic, N. J., on December 7th, Passaic charities will receive \$340,000. This amount includes a trust fund of \$200,000 for the Passaic General Hospital, \$50,000 to the Passaic Home and Orphan Asylum, and \$20,000 to St. Mary's Hospital.

Peter Doelger, who died on December 15th, left \$15,000 to philanthropic organizations, which included \$3,000 to the New York German Hospital and Dispensary, \$1,000 to Mount Sinai Hospital, \$6,000 to the Sisters of St. Francis, and \$3,000 to the Home for the Aged of the Little Sisters of the Poor.

A Low Death Rate in New York Last Year.—According to the annual statement of vital statistics of the city of New York, just issued by the commissioner of health, the past year's death rate was the lowest the city has ever experienced, and it is believed that it will compare favorably with that of any other large city in the world. The total deaths reported during the year numbered 73,008, which was 2,415 less than during 1911. The annual death rate in a thousand of population was 14.11 last year; for 1911 it was 15.13; for 1910 it was 15.98 and for 1909 it was 16.0. A comparison of the past year's mortality from different causes with the averages of the years 1902 to 1911, inclusive, shows a reduced mortality in all causes except cancer and homicide. There was an increase of 57 deaths from homicide, but a decrease of 174 deaths due to suicide. Infant mortality during the year was the lowest ever recorded in the city, the rate being 10.05, which is considerably lower than any of the large cities of the world, with the exception of Paris.

Child Labor Day.—The six thousand clergymen who last year observed Child Labor Day are asked to speak on that subject Sunday, January 26th, or Saturday, January 25th. For seven years the National Child Labor Committee has issued such an appeal, and the interest aroused by the last Child Labor Day resulted in a general demand for the passing of the Federal Children's Bureau Bill, in improved child labor laws in ten of the fourteen States holding legislative sessions, and an increasing use of lecture slides and exhibits about child labor. The day has never been used as an appeal for funds and this year special attention is called to child labor in tenement house manufacturing. The National Child Labor Committee also reminds clergymen that child laborers become unskilled adult workers, and the Chicago Vice Commission gives as the second greatest cause why 40,000 girls are sacrificed annually to an immoral life, "the economic stress of industrial life on unskilled workers, with the enfeebling influences on the will power." This cause the commission gives as second only to the lack of ethical training and religious instruction.

Millions Spent in Campaign against Tuberculosis.—According to the fourth annual statement of expenditures issued by the National Association for the Study and Prevention of Tuberculosis, nearly \$19,000,000 was spent in the antituberculosis campaign in the United States during the year 1912. The expenditures during the year for sanatorium and hospital construction and treatment make the largest single item in the total, amounting to nearly \$16,800,000. The antituberculosis associations and committees spent over \$765,000, while dispensaries and tuberculosis clinics spent over \$500,000. Over \$115,000 was spent for the maintenance and establishment of open air schools and fresh air classes, which is more than double the amount spent for this purpose in 1911. Official, State, and municipal expenditures outside of the maintenance of institutions, which are included in the other totals, amounted to \$280,000. In addition to these figures, about \$500,000 was spent by hospitals for insane and penal institutions in caring for their tuberculous inmates. The total expenditures for the year 1912 are 20 per cent., or nearly \$4,500,000 greater than the total for the year 1911. Another significant feature pointed out by the national association, is the expenditure of public money. During the year 1912, 65.6 per cent. of the \$18,900,000 spent in tuberculosis work came from either Federal, State, county, or municipal funds. New York State again leads in the amount spent in fighting tuberculosis, the total amount expended being \$5,162,316; Pennsylvania comes next with a total expenditure of \$2,219,310, while Massachusetts and Colorado are third and fourth, with total expenditures of \$1,407,319 and \$1,005,520, respectively.

Pith of Progressive Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

November 5, 12, and 19, 1912.

Muscle Contraction and Colloid Expansion.

—Grober's many experiments are concerned with the time required for the swelling of the unstretched colloids in acid solution and their shrinkage in salt solution. The time relation of these colloids and those of muscle contraction are so similar in every respect that the supposition held by many authors becomes probable, i. e., that muscle contraction is chemically produced colloidal expansion.

Sixty Nephrectomies.—Suter reports two deaths immediately following operation out of sixty cases of nephrectomy; four of the survivors died later. Out of fifty cases, fifty-six per cent. were permanently cured, thirty-four per cent. much improved, ten per cent. only slightly or temporarily improved. Among the latter most of the patients had bladder involvement. The condition of the bladder before operation influences the prognosis, therefore in the early stages before the bladder is involved the prognosis after a radical operation on the kidney is very good. An unfavorable factor in the prognosis is the testicular or prostatic involvement. As a general rule, women have double the chances for recovery that men have. It is remarkable what a small minor part pulmonary tuberculosis plays in the later complications.

Septic Rheumatoid Conditions.—Schürer found *Streptococcus viridans* (Scattenmüller) in the blood of three patients suffering with acute polyarthrititis following an attack of follicular angina. The clinical picture was in no essential point different from the severest polyarthrititis rheumatica except that the patients were uninfluenced by salicylic acid. This circumstance coupled with the fact that in the severest cases of articular rheumatism the blood cultures are persistently negative, compel us to separate etiologically septic arthritic rheumatism from the real polyarthrititis rheumatica.

Ocular Disturbances Caused by Sun Eclipse.

—Hoppe enumerates seven cases. Of the greatest interest were the functional disturbances, dark spots, light and moving apparitions, diminution in the sharpness of vision. All these patients within six weeks' time recovered sufficiently for the performance of the ordinary duties of daily routine, but in no case was there complete ideal recovery of all the functions of the retina.

Pituglandol.—Eisenbach recommends this hypophysis extract as the best of all the ecboles on the market at the present time. It is not, however, altogether reliable in its action. It cannot induce abortion. It is excellent in atonic hemorrhage. With careful administration, no harmful side actions were noticed.

Neosalvarsan.—Stühmer says that the tolerated doses of neosalvarsan is, according to his revised experiments, 0.2 to the kg. of rabbit. The clinical identity of the so called salvarsan exanthemata and the real serum exanthemata point to a causal fundamental participation of an albuminous body in each. Animal experiments with dissolved antigen blood corpuscles show that a real anaphy-

laxis exists toward such substances. The author thinks he is justified in explaining the hitherto inexplicable exanthemata and delayed death after the intravenous injection of neosalvarsan as the result of the formation of a body proteid through hemolysis. The use of a 0.5 per cent. sodium chloride solution, decreasing single doses, increasing the intervals between injections, and intramuscular injection precautions will act prophylactically.

Neurorecidives after Salvarsan.—Cronquist finds that the presence of neurorecidives after salvarsan treatment varies markedly in the different clinics and seems to be particularly conspicuous in certain regions. This circumstance gives rise to the suspicion that Ehrlich's injection rules are not followed scrupulously. When the solution is not injected immediately after its preparation, or when the solution during its preparation is stirred too vehemently, oxidation products are formed, much more poisonous than salvarsan, which probably have an affinity for the central nervous system.

Local Treatment by Steam.—Baeyer, noticing the disadvantages with treatment by hot air and the good results obtained by the use of steam baths and steam douches for the whole body, was induced to construct steam chests for local applications, which he describes in this article. No burns of any kind were produced in over 1,000 treatments. The results obtained in accident cases were also very satisfactory. In almost all cases the patients preferred the moist, warm air to the other modes of treatment.

Postoperative Intestinal Paresis.—Pettenkofer recommends an intestinal electric stream for paresis of the gut, the principle of which consists in making a fluid in the intestine act as the electrode. An intestinal probe containing a metal spiral serves to transmit the electricity. The second electrode consists of a metal massage ball covered with felt. The stream is allowed to flow from five to ten minutes, increasing its strength slowly to fifty milliamperes, then decreasing to zero and changing the current. When the indications for relieving the paresis are not very urgent the procedure may be repeated in a few minutes in cases in which the first attempt was not successful.

Compression Myelitis.—Mendler reports a case in which at operation the cause of the compression was found to be a vertebral sequestrum, three cm. long, which had penetrated into the spinal canal and was surrounded by fibrous adhesions. The operation was followed by an excellent functional result.

Treatment of Furunculosis.—Schüle asserts that incipient furuncle is inhibited from further growth by central cauterization. As a prophylactic he recommends Haegler's disinfection method, épilation of the affected skin, and the application of Credé's salve. On the following day tincture of green soap, absolute alcohol, and another application of Credé's salve. After fourteen days the latter is displaced by zinc salve.

Treatment of Large Carbuncles by Circumcision.—Heddaus relates another case of a diabetic carbuncle in which a good result was obtained by deep circular incision around the necrotic area. This area thus became walled off and did not

spread further. However, secondary lung foci had formed so that this operation could not prevent a fatal outcome.

Application of Neosalvarsan to the Eye.—Rosenmeyer reports a case of parenchymatous keratitis and congenital syphilis which had resisted all previous specific treatment, but was cured by a local application of two per cent. neosalvarsan (partly in solid form and partly in two per cent. solution). The process was brought to an immediate standstill, while a gradual clearing up of the cornea took place.

Prophylactic Appendicectomy in Gynecological Operations.—Hörrman says that in every gynecological operation the appendix should be removed. It is not sufficient to remove only the macroscopically changed appendix. Severe inflammatory changes frequently escape the senses of touch and sight; only the microscope is able to make the final diagnosis. However, the appendix need not be removed in operations for malignancy, in hasty operations in women over sixty years, nor in long lasting operations. Neither is it necessary in cases where removal of the appendix would entail the loss of much time, or increase the incision, or where an entirely new incision would have to be made.

Salt Solution in Anaphylactic Shock.—Langer's experiments on animals have shown that guineapigs treated with lamb's serum do not react so strongly in anaphylactic shock when they are given repeated small doses of salt solution *per os* before the second injection of the serum. These results, the author believes, should be verified on the human subject since the means of verification are so harmless in themselves.

ZENTRALBLATT FÜR CHIRURGIE.

December 7, 1912.

The Value of Bile and of the Contents of the Small Intestine to the Organism.—Schmilinsky reports two cases, one of a biliary fistula from which from 800 to 1,000 c. c. of bile escaped daily. The patient was in bad condition when seen, and, as this was ascribed to the enormous loss of bile, measures were taken to conduct the secretion into the stomach. The stomach bore it well and the patient improved so much that a plastic operation to unite the biliary fistula with a loop of the intestine could be performed. The other was a case of a fistula in the upper part of the small intestine which had to be made during an operation because of the condition of the patient. There was a rapid loss of strength, together with the other annoyances connected with an intestinal fistula in the upper part of the tract, so, four days later, connection was made with the transverse colon with good result.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

November 16, 23, and 30, 1912.

Streptococci in the Vaginal Secretion of Parturient Women.—K. W. Jötten, on investigating the lochia of twenty women free from fever, found in fourteen typical hemolytic streptococci. He comes to the conclusion that such streptococci have no pathological significance, neither *intra partum* or afterward.

The Action of the X Ray on Carcinoma of the Uterus.—E. Bumm reports a case in a woman

of forty-six years, who was greatly benefited by massive doses of the x ray. No specific action upon the tumor could be demonstrated, the limitation of the growth and the cleansing of the carcinomatous surface being due apparently to a sclerosis of the surrounding muscular and connective tissues.

The Treatment of Eclampsia.—Lichtenstein believes that the expectant treatment rests on a firmer foundation than does the active. He lays much stress on the value of venesection primarily, it being a rapid and rational method.

The Rubber Glove as a Source of Infection.—H. Hellendall and Fromme report a large number of bacteriological examinations made of the perspiration that collects in the gloves during operations. They found a considerable number of bacteria, although the hands had been disinfected and the gloves sterilized. From this they conclude that slight tears in the gloves may be able to cause infection through the escape of the organisms present in the perspiration.

Myoma and Pregnancy.—S. S. Cholmogoroff reports a case in a woman of forty years in which the fetus was enclosed in a uterus that had undergone a complete interstitial myomatous degeneration.

ZENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND PATHOLOGISCHE ANATOMIE

November 15, 1912.

Anaphylaxis and Waxy Degeneration of the Muscles.—H. G. Wells calls attention to an article in the same journal (XII, 23), in which the authors, Beneke and Steinschneider, state that the waxy degeneration occurring in the voluntary muscle in anaphylaxis is due to the acute poisoning. Wells believes that the condition is due not to the anaphylaxis, but to the asphyxia and the accompanying irritation of the respiratory muscles.

Cylindroma of the Skin.—G. F. Dick takes exception to Borst's assertion that cylindromata are endothelial in structure. He holds that the specimen which he reports as well as the cylindromata of the salivary glands and skin in general are of epithelial origin.

MONATSSCHRIFT FÜR KINDERHEILKUNDE.

October, 1912.

Sugar of Breast Milk.—F. Lust calls attention to the fact that, while the literature abounds in various articles on the proteid and fat content of human milk, very little has been written about the sugar. Lust examined the sugar from the milk of twenty-five women and found that the average percentage of sugar was 7.1 per cent. The least amount was 5.7 per cent. and the greatest amount 8.5 per cent. Thus it is seen that some breast milk contains thirty grammes more milk sugar in a litre than others. Lust shows that a large amount of milk sugar in breast milk may be the cause of diarrhea, while a small amount, on the other hand, may cause constipation. Lust experimented to see whether adding sugar to the mother's diet would increase the amount of sugar in the milk. In some cases the percentage of the sugar in the milk was slightly increased by giving 100 grammes of malt extract to the mother daily, while in other cases the percentage of sugar was not affected.

Eosinophilia and Exudative Diathesis.—Erich

Aschenheim is of the opinion that an eosinophilia of five per cent. is normal in childhood. According to him, in infants the eosinophilia may even be higher. From Aschenheim studies the following conclusions are drawn: 1. An eosinophilia is more often seen in severe eczema than in any other manifestation of exudative diathesis; 2, the eosinophilia disappears when the skin eruption improves; 3, eosinophilia may occur without any symptoms of exudative diathesis (or worms); 4, eosinophilia may occur in perfectly healthy individuals.

ZEITSCHRIFT FÜR AUGENHEILKUNDE

November, 1912.

Injuries of the Eye by Lightning.—F. von Marenholtz reports the following curious case: A woman was sitting close to a window during a thunderstorm, with the right side of her face turned toward the window. She was holding a child in her lap. Suddenly she was struck by lightning and rendered unconscious. The child in her lap was not struck or injured in any way. The woman was unconscious for half an hour; when she waked she had tremblings, weakness, and pains in all of her limbs, but no signs of paresis. The hair on the right side of her head and her right eyebrow was singed, but there were no other external signs of injury. The nervous shock kept her in bed for three weeks. On the day after the accident she complained of her right eye, which was found to have an inflammation of the iris and to be almost blind. No treatment was given for six weeks, at which time the eye was photophobic, the seat of an attack of iritis. The lens had several punctate, yellowish white opacities on its anterior capsule, confined entirely to its medial portion. The papilla was cloudy, its margins indistinct. In the region of the macula there was a gray spot with a white margin, and outward from the papilla another atrophic place in the retina that was richly pigmented. The visual field was concentrically contracted, with two absolute scotomata corresponding to the two lesions in the retina, the vision was reduced to 0.1. The vision of the left eye was normal. Under treatment the iritis disappeared in the course of three weeks, although the pupil could not be more than moderately dilated, but the conditions in the fundus and in the lens, as well as the vision, remained unchanged.

PARIS MÉDICAL.

December 7, 1912.

Bone Traumatism in Children.—Kirmisson, in terminating his article by a discussion of treatment, says that reduction followed by methodical immobilization is the ideal procedure. Immobilization in the young need not be as prolonged as in adults, a month usually being long enough. In the young, moreover, there is little likelihood of ankylosis, the great stumbling block to immobilization in the old. Massage must be cautiously used in children; used too soon or with too much force it may irritate the periosteum and cause new growth. The surgeon must not confound massage with passive movements, the latter being most dangerous, while massage, practised with skill and gentleness, gives excellent results.

Treatment of Spastic Paralysis by Resec-

tion of Nerve Roots.—See this JOURNAL for November 16, 1912, p. 1033, where a summary of this paper appears.

Should We Operate in Spina bifida?—Froelich answers this question in the negative, unless the tumor is growing with great rapidity, seems likely to rupture, or its surface is covered with ulcers.

PRESSE MÉDICALE.

November 23 and 27, 1912.

Artificial Menopause.—T. Tuffier and A. Mauté assert that not less than three distinct morbid factors must be recognized in the etiology of the symptoms of artificial menopause, viz., the suppression of the ovarian internal secretion, independently of its menstrual function; the suppression of the menses, and changes produced in other internally secreting glands by the removal of the ovarian influence. The effect of the first of these factors is practically limited to metabolic disturbances, such as may lead to chronic rheumatism and obesity. The congestive and nervous symptoms are the result of the suppression of the menses and not directly of the ovarian deficiency, while the disturbances in the functions of the other glands, manifested especially in adrenal and thyroid overactivity, add to the difficulties resulting from the menstrual suppression, and play a prominent part in the production of the symptoms. Ovarian extract alone has not given very satisfactory results in the artificial menopause, and should be reserved to combat the trophic changes—obesity, chronic rheumatism—and perhaps for certain cases of confirmed exophthalmic goitre, in which it has seemed to be of value. The congestive and nervous phenomena should be treated with agents restraining the activity of the thyroid and adrenals—for the thyroid, antithyroid serum, and for the adrenals, ipecac, sodium salicylate, opium, and ergot. In a few special cases thyroid substance and epinephrine, in small doses, were employed, on the principle that small amounts of these agents appear sometimes to reduce the corresponding function. Intelligently employed, these drugs quickly relieve the symptoms.

Appendectomy and Radical Cure of Femoral Hernia by Inguinal Route.—E. Desmarest asserts that in all cases of right sided femoral hernia unaccompanied by strangulation, simultaneous removal of the appendix is indicated. This combination of procedures can be easily executed only by way of the inguinal canal, an additional argument besides those already advanced being thus afforded in favor of the inguinal route in operating on right sided femoral hernias. Desmarest describes the technic and reports three cases in which he performed the combined operation; in but one of these was there a history of appendicular symptoms.

Experimental Polyuria.—H. Vaquez and J. Cottet add to their previous communications on the relation of the volume and specific gravity of the urine secreted in the daytime and at night, further information on the behavior of the chlorides and urea in these two periods, and point out the utility from the diagnostic standpoint of estimating the output of chlorides in testing for renal incapacity by the induction of polyuria.

SEMAINE MÉDICALE.

November 27, 1912.

Annexal Inflammation and Lymphangitis of Upper Border of Broad Ligament.—R. de Bovis discusses the annexal complications that may follow parturition, exclusive of the common and well recognized type of broad ligament inflammation. He refers in particular to the so called "puerperal salpingitis," described in detail by Friedman in this country some years ago. After operating in three cases he disagrees with the statement that the inflammatory tumors referred to represent a true salpingitis. In one instance, indeed, there had been a voluminous pyosalpinx which had ruptured into the broad ligament, but it seemed clear that this condition had been present before, and had become aggravated and perforated owing to the pregnancy and parturition. In the two other cases the tube was thickened, but merely in its outer cellular covering, the duct being free of pus; the broad ligaments, on the other hand, were congested and edematous in their lateral portions, and there were abscesses, in one case opposite the hilum of the ovary and in the other in the interval between the tube and the round ligament. The appearance of the annexal trouble a few days after parturition, the rapid progress of the infection, the fact that the mucous membranes are generally spared, and the occasional production of a psoas abscess, as in one of the author's cases, all point to a streptococcic rather than gonococcic infection, advancing by way of the lymphatics, and while perhaps inducing some salpingitis, causing lymphangitis in particular. From the etiological and clinical standpoints the condition thus closely resembles the classic circum-uterine phlegmonous inflammation. There is this difference, however, viz., that the uterus remains movable, the infection occurring by preference in the lateral expansions of the broad ligament rather than at its base. The treatment is at first medical—icebag especially—operative intervention being reserved for prompt use when signs of suppuration appear.

ARCHIVES INTERNATIONALES DE LARYNGOLOGIE,
D'OTOLOGIE ET DE RHINOLOGIE.

September and October, 1912.

Stenosis of Esophagus.—Sargnon notes that stricture is usually caused by action of the caustic and follows in short time after swallowing such a solution. Stenosis may be secondary to ulcerations, as after scarlatina or peptic ulcer of the cardia. Luetic stricture has not been observed, tuberculous stricture is doubtful. Diagnosis often requires the esophagoscope. In simple cases dilatation with bougies is used, preferably slow, from a few hours up to twenty-four hours. Complex cases require visual search to find the lumen (endoscope), which is usually lateral. Dilatation is instituted. Brünings has devised special probes for this internal esophagotomy, either with esophagotome, a Guisez guide, or with hidden blade. Electrolysis has not been tried by Sargnon. In cases requiring external surgery, gastrotomy is used as a preliminary; this allows the use of probes and permits keeping them in place from twenty-four to forty-eight hours, feeding being through the new gastric

mouth, and dilatation of the esophagus may be in either direction. Care must be used in retrograde cartilage dilatation not to injure the retrolaryngeal region because of danger of edema of the larynx. Low cervical esophagostomy is useful, the operation being done in two parts, an external opening on the left, then suture of the muscles about the esophagus to the muscles of the neck and to the skin, so as to have a temporary opening. At the subsequent operation, the narrowing of the tube is looked for (visually) and Nélaton's probes are introduced. The major external operation (anastomosis of esophagus with stomach, skin or intestines) Sargnon believes to be quite unnecessary if patience and skill are used with the endoscope.

Lumbar Puncture in Ear Suppurations of Diabetics.—Ferrerri says that acute middle ear disease and mastoiditis in diabetics is very common and very grave. The prognosis is good according as the urine contains little sugar, when acetone and diacetic acid are lacking, and when operation is early. The presence of sugar in the cerebrospinal fluid Ferreri believes to be a most important finding, until now not emphasized. If present, it means a very grave prognosis. It is in cases where the urine contains little glucose (a complication, acute otitis developing meanwhile) that one observes endocranial diffusion and that lumbar puncture is most helpful. If the amount of sugar in the cerebrospinal fluid reaches four per cent., coma is imminent and operation useless. If practised early, lumbar puncture will lessen the sugar content in the urine. Dangerous operative cases among diabetics are those presenting generalized symptoms beside polyuria, and those cases rare until now in which abundant glucose is found in the spinal fluid. In these there is great destruction of bony tissue and coma is to be expected. Ferreri believes that presence of sugar in ear complications demands an early operation, which has good prognosis only if the patient is relatively young. Lumbar puncture he advocates more for diagnosis and prognosis than as a curative means. Pus, acetone, and diacetic acid in this fluid give a very grave prognosis. However serious the ear suppuration may be, if no trace of glucose is found in the fluid, surgical intervention will not be disturbed by coma or other complications, either as a result of anesthesia or in the course of the sickness.

Tuberculosis of the Larynx Complicated with Diphtheria.—Imhofer reports a case showing this combined infection in a working man, forty-one years old, whose cough had lasted about six weeks. During the last four weeks, his voice had become involved. The false membrane at necropsy involved the lower part of the epiglottis, the vocal cords, interarytenoid region, larynx, trachea, and right bronchus. The lungs were filled with miliary tubercles. The bronchial glands, spleen, and ileum were greatly involved. Of the tonsils, the left was normal, while the right showed miliary or conglomerate tubercles. Koch's bacillus was found in these organs with a typical pathological picture. Typical Klebs-Loeffler bacilli were found in the false membrane. Imhofer considers the patient to have been a "carrier" of diphtheritic infection, since there was no other apparent infective agency. The diph-

theria was evidently planted on the tuberculous process which had weakened the patient's resistance and was spreading from below upward, not having passed the larynx at the time of death.

Subglottal Abscess.—Torretta reports a case in a man, forty-one years old, who had marked attacks of suffocation; external examination showed a uniform swelling from the thyroid to the jugular fossa, with skin of normal color, induration, but no fluctuation. Internally, under the anterior commissure was a swelling the size of an almond, filling most of the tracheal orifice. Incision of this area was made and about a soup-*spoonful* of thick pus emerged, the patient being in the Rose position. Respirations become easy. Eight days later, there were redness and fluctuation externally. An external incision was made down to the thyroid isthmus and abundant pus found; packing was done and cure ensued in a fortnight. Torretta classes the case as an abscess of the thyroid isthmus. Excepting for need of the immediate operation external evacuation is indicated.

Origin of a Facial Palsy.—Houlié reports complete facial paralysis following removal of dressing four days after a radical mastoid operation. The sudden removal of packing, the patient being under ethyl chloride, evidently tore the exposed nerve.

RIFORMA MEDICA.
November 30, 1912.

Anastomosis of Nerves.—C. Barile reports some experiments on a modified technic; his idea is to put in contact a maximum of nerve filaments with the least injury to the nerves. With a fine knife he cuts circularly the healthy nerve, so as to form a kind of groove all around; then he cuts the paralyzed nerve V shape. With four stitches, two on each nerve, he insures the paralyzed nerve lying in the groove made in the healthy one, in this way bringing into contact all the fibres of the paralyzed nerve with a great number of the fibres of the healthy one. Barile asserts that with his technic he had a reestablishment of the function of the nerves much more complete and rapid than with the older methods; his experiments were made by comparing results obtained in two limbs of the same animal; one limb being operated on by his method, the other by different procedures now in use.

ROUSSKY VRATCH.

September 29 and October 6, 1912.

Hedonal Chloroform Anesthesia.—E. M. Senkevitch reports 100 cases in which he preceded the chloroform anesthesia by administration by the rectum of five to six grammes of hedonal in 100 to 150 c. c. of water, from thirty to fifty minutes before the anesthetization. He found that hedonal acts favorably on the chloroform narcosis in all its stages. The primary feeling of asphyxia is eliminated; the narcosis comes on more rapidly; the period of excitement is either diminished or altogether removed and a much smaller quantity of chloroform is required. The effect of hedonal is somewhat accelerated by the addition of from ten to thirty per cent of alcohol to the solution, but the alcohol increases the heart's action, while lowering the blood pressure, and should not be used on any but vigorous young

persons, particularly men, and on alcoholics. Hedonal chloroform anesthesia should take the place of chloroform alone or morphine chloroform.

Experimental Scarlet Fever.—V. N. Klimenko reports a number of experiments on monkeys, *Macacus rhesus*, in which he endeavored to transmit scarlet fever. Altogether he used twenty monkeys and varied the methods of infection in every conceivable manner, but in not a single instance was the disease transmitted.

Scarlet Fever in Infancy.—L. V. Aksenoff concludes from a series of observations that scarlet fever is rare in breast babies, particularly during the first six months. It is more common in boys. The complications during the first half year are more frequent and more severe, the most serious being gangrenous sore throat, and the most frequent lymphadenitis.

Palpation of the Appendix.—P. F. Bjalkus asserts that a normal appendix cannot be felt and when it is palpable it is diseased. Generally, palpation of a diseased appendix is possible if proper care is exercised in making the examination. Chronic appendicitis, he found, frequently complicates pulmonary tuberculosis, and acts unfavorably on the disease by interfering with the nutrition.

Thorium in Pernicious Anemia.—S. M. Livshitz reports a case of pernicious anemia treated successfully with water charged with thorium (50,000 Maché units). After drinking this water for a month the patient was relieved of all his symptoms and the blood became practically normal.

BRITISH MEDICAL JOURNAL.

December 7 and 14, 1912.

Biology of Tumors.—C. M. Moullin remarks that Nature has never drawn a line separating the benign from the malignant tumors. Malignancy is a purely clinical term, and metastasis is only an accident of growth, absent from what are called benign tumors because the cells of these have reached a more advanced stage of organization and can no longer exercise their primitive power of detachment and autotransplantation. Remarking that tumors are common to all animals, Moullin states that he will draw from all sources for his facts. The primitive functions of the living organism, be it a single cell or a complex of cells, are those of growth and multiplication. Early in the course of evolution these two functions became separated in the more complex organisms with the differentiation of the germ and somatic cells. In the course of this specialization the somatic cells lost their power for the reproduction of the race and later for reproduction of the individual. Long after the power of complete reproduction had been lost the somatic cells still retained powers to reproduce parts of organs or of portions of the body which had been destroyed. Finally, all that is left to the somatic cells of the powers which they originally possessed is that of simple growth, the ability to maintain size and structure unimpaired in the face of constant waste. Whether the organism is a primitive metazoon or an ovum which will develop into the most highly specialized of mammals, the force which regulates and controls its development, as distinct from the power of growth, which is an inherent property of its cells so long as they are

living, is the mutual influence that these germ and somatic cells exert upon each other and their fellows, compelled thereto by the differentiation in their work. It is this influence, working with the driving force of inheritance through countless ages, modified in some infinitesimal degree by the surroundings in each individual case, that frames the laws that guide and control the development of the body and the tissues that compose it. Tumors do not obey these laws. They are tumors because they do not. Whatever their structure, their growth and development are not conditioned in any way by the growth and development of the rest of the body. The degree of perfection to which they attain depends upon that of the tissue from which they spring, and the rate of their growth partly upon this, partly upon the supply of food they can get. Whatever their origin, no relation, such as that which holds good between the germ and somatic cells, ever exists between them and the parent body. They simply live upon it like parasitic growths. Tumors from somatic cells originate by a process of budding from these cells after their differentiation from the germ cells has taken place, or from structures developed from them. These tumors owe their origin, not to the action of germ cells, but to the release from control of what is left of the power of reproduction which the somatic cells originally possessed in equal degree with the germ cells. When the resulting tumor is built up of tissues that have practically attained their full development its increase in size is slow, and it never invades the rest of the body. When it consists of cells which retain so much of their primitive energy of growth that, if once released from the restraint of the laws that would compel their future development, they grow and multiply in a manner only surpassed by the cells that compose the germ layers of the embryo. They increase without limit, and without an attempt at higher differentiation, and they spread everywhere in the directions of least resistance, partly of their own efforts, by a process of autotransplantation, partly carried along in the blood stream or in the lymphatic channels, and unless destroyed as foreign bodies they reproduce their kind wherever they come to rest. This explanation of the origin of tumors holds good not only for those tumors that spring from the somatic cells and are formed of more or less highly differentiated simple tissues, but it is no less true of those strange growths that sometimes develop from fetal or embryonic relics. It is not tumors that are inherited, but the strength of the driving force that directs development and controls growth.

Function of Appendix.—Arthur Keith, as a result of careful investigations into the comparative anatomy of the cecum and the appendix, comes to the conclusion that both of these organs have definite functional parts to play in the processes of digestion. The cecum is divided, even in man, into two distinct regions, the cecum proper and the cecocolic sphincteric tract.

Intracellular Parasite Developing into Spirochetes; Parasites Found in Syphilis.—E. H. Ross, using the jelly method of examination and staining, has found cell inclusions in syphilitic tissues which are closely similar to Kurloff's bodies. The

first case was from a Hunterian chancre. This was pricked and the blood was examined on a jelly. In several of the mononuclear leucocytes there were distinct cell inclusions, each one of which was imbedded within the cell cytoplasm itself, surrounded by a cell wall, and having a distinctly staining chromatin mass in its interior. Round or pear shaped bodies were found in the same specimen, lying free between the blood cells. These were similar in size, shape, staining reactions, presence of chromatin nucleus, cytoplasm granules, to those seen included within the cells. These intracellular and extracellular bodies have since been found in each of 143 cases of primary or secondary syphilis which has been examined by this method. They have been found in the chancres, in the hard, shotty, nonsuppurating glands, in the blood from the maculæ and condylomata, in the ulcerated tonsils, and in the blood taken from the finger. It is obvious, for many reasons, that these bodies are parasites, and now various stages in their development have been observed. The following outline of the various stages in the development of this parasite may be given: The small extracellular, round, or pear shaped bodies, common in chancres and glands, become included within the cytoplasm of the leucocytes, epithelial, and other cells. Here they encyst themselves in a cell wall, grow, and their chromatin undergoes division and subdivision. These bodies may be found multiple or single in the large mononuclear cells. As the parasites grow the nucleus of the cell is squeezed and distorted. Each of the several chromatin masses within the parasite has in its centre a well marked, deeply staining dot. There may be from one to twelve chromatin masses within an inclusion, according to the size and development of the parasite. In the fully grown parasite, to be found in the large mononuclear cells squeezed from the deeper parts of the chancres or found in the glands removed by operation, each chromatin mass is seen to resemble the free, round or pear shaped forms already described. In some instances the chromatin mass gives rise, while still within the cell and when it has reached its full size, to several minute purple staining, curled and twisted, spirochetelike tails, many closely resembling *Spirochæta pallida*. When these inclusions rupture the spirochetes are extruded. All of the forms described have been seen in chancres, glands, and sores of syphilitic patients and also, but far less frequently, in the circulating blood. They have not been seen in any except syphilitic patients, though many controls have been examined. The administration of salvarsan or treatment with mercury reduces the numbers of the free parasites apparently within a few hours. The included forms seem to remain unaffected. The great constancy with which these parasites are found may be a means of diagnosis of syphilis at a very early stage. The extremely close similarity which exists between these parasites of human syphilis and the Kurloff bodies, together with the other forms of *Lymphocytozoon cobayæ* of guineapigs and rabbits, justifies the suggestion that these guineapig or rabbit parasites might produce in man a mild affection capable of modifying human syphilis in the same way as vaccination with cowpox has modified

smallpox in man, both in the individual and in the community.—E. Jennings and S. R. Moolgavkar, working independently of Ross and of one another, have confirmed many of the findings just described.

The Infective Granule as the Initial Phase in the Life History of a Hemogregarine.—H. Henry describes a somewhat analogous course of development in the case of *Hemogregarina simondi* parasite, the spirochetosis of Sudanese fowls, to that described by Ross for *Spirocheta pallida*. However, his object is to show that the free, newly formed hemogregarina contains two or more refractive granules, which emerge from the nucleus and traverse the parasite to one or the other pole, usually to the posterior. These granules are then shaken free from the living parasite as it swims along. These free granules are much more highly refractile and show far more active Brownian movement than do the free leucocytic and other granules which are to be found in fresh blood. These granules may be found frequently in specimens of blood showing heavy infection with the hemogregarina, and they appear to be undergoing division within the cells. As they increase in size these granules, which seemed at first to be wholly chromatin, become surrounded by a clear zone which later becomes a definitely stained accumulation of protoplasm. In the liver and spleen these granules appear to grow rapidly and to become distinct hemogregarines.

LANCET.

December 7 and 14, 1912.

Eclampsia.—A. J. Wallace reviews the previously used methods for suppression of the convulsions in eclampsia, with considerations as to their shortcomings. He then reports upon two cases in which he used magnesium sulphate by intradural injection. In both of the cases the convulsions seemed to be well controlled, at least for several hours at a time. The injection was made into the subdural space in the lumbar region and one c. c. of a sterile, filtered solution of magnesium sulphate of twenty-five per cent. strength was injected for every twenty-five pounds of the estimated weight of the patient. In the first case seven fits had occurred in the seven and a half hours preceding the injection and none in the seven hours following the injection. In case two there had been six fits prior to the injection, three being severe, while none occurred during the four hours after the injection.

Osteomyelitis of the Spine.—G. R. Strong reports eight cases of this comparatively rare condition, one from life, the others from the post mortem records of the hospital. All of the cases were due to staphylococcus infection, and most gave a history of injury. In many the condition closely resembled tuberculous disease of the spine. From an analysis of these he concludes that where the arches of the vertebræ are involved the prognosis is considerably better than where the bodies have been attacked. Immediate operation seems to hold out the only hope in treatment. Strong believes the condition to be far commoner than is usually thought to be the case and urges that it be considered in all cases of spinal disease, except those which are most obviously tuberculous. In view of this, he thinks that

in every case the local tuberculin tests should be made, the general tuberculin reaction taken, the tuberculoopsonic index measured, a leucocyte count, and a blood culture taken. Any spinal swelling should be aspirated and the fluid examined bacteriologically as well as being subjected to a cytological examination. The spine should be radiographed, and if doubt still remains an exploratory incision should be made.

Tuberculin.—J. H. Lyons, believing that old tuberculin might contain some substance which produced a positive reaction, perhaps by irritation, on apparently healthy individuals whose skin is not sensitized by the products of the tubercle bacillus, sought to remove that substance with the idea that a positive skin reaction might then more definitely indicate the presence of tuberculous disease. By repeated precipitation of a sample of old tuberculin with a considerable bulk of absolute alcohol he obtained two substances; one the clear filtrate, which had been reduced by evaporation to the bulk of the original tuberculin used; the other the several collected precipitates, which he dissolved in distilled water. Skin tests made with the latter, by injecting it into the skin, showed positive reactions in ninety-two per cent. of all the persons upon whom it was tried, though many were nontuberculous. The filtrate, on the other hand, has given no positive reaction in persons apparently free from tuberculosis. It does, however, give positive reactions in the vast majority of those who are tuberculous, 186 positive out of 191 tuberculous subjects tested. All of the five who gave completely negative tests were in the last stages of the disease and died within two weeks. A positive test is shown by the development around the area of injection into the skin, beneath the horny layer, of a raised area of induration and inflammation, appearing in twelve to eighteen hours. This form of purified tuberculin has also been used in the treatment of some few cases and the results seem to have been good up to the present time.

Pharmacotherapy of Pneumococcus Infections.—A. E. Wright and his collaborators have made experimental studies of Morgenroth's new drug, ethylhydrocupreinhydrochloride, taking up the following lines of investigation: 1. Measurement of the bacterial effect exerted on the pneumococcus by the drug in graduated dilutions in water and serum respectively. 2. Prophylactic and therapeutic animal experiments, together with measurement of the bactericidal effect exerted on the pneumococcus by the blood of these animals drawn both before and after administration of the drug. 3. Preliminary experiments on normal and infected men, together with measurements similar to those detailed under 2. 4. Comparison of the course which pneumonia runs in treated and untreated cases. The first group of experiments brings out the following facts: Dilutions of one part of lysol in 500 parts of serum, dilutions of one part of creosote in 2,500 to 12,500 parts of serum, and dilutions of one part of guaiacol to 2,500 parts of serum fail to kill the pneumococcus. Dilutions of one part of lysol in 62,500 parts of water, one part of creosote in 300,000 of water, and one part of

guaiacol in 1,500,000 of water, all kill the pneumococcus. On the other hand, dilutions of one part of ethylhydrocupreinhydrochloride in 400,000 parts of serum kill the pneumococcus, and one in 800,000 inhibit its growth. The antiseptic values of the serum dilutions of this drug do not differ appreciably from the values of watery solutions. The experiments further show that the drug exerts its bactericidal powers specifically upon the pneumococcus. The inference from the experiments is reasonable that this drug would be capable of exerting a bactericidal action on the pneumococcus *in vivo*. Calculating on the assumption that a drug absorbed into the blood all at one time will act in its total quantity at the same moment, the doses of the several antiseptics experimented with may be compared for a seventy kilo man, giving amounts in each case sufficient to produce bactericidal action on the pneumococcus circulating in the blood. The dose of lysol would be greater than fourteen grammes, of creosote or guaiacol greater than 2.8 grammes, while of the new drug it would require only 0.017 gramme. Morgenroth's observations on mice inoculated, before or after treatment with the drug, with a strain of pneumococci which was invariably fatal to untreated mice, showed that the drug prevented infection in ninety per cent. of prophylactic inoculations, and cured about fifty per cent. of the mice treated after inoculation. Mouse experiments of Wright and his coworkers confirm the findings of Morgenroth, for the serum and urine of mice treated with the drug both showed greatly increased bactericidal powers toward the pneumococcus. The urine of treated men showed similar increased bactericidal properties. These bactericidal properties are not destroyed by heating these fluids to 60° C. Tests of the bactericidal and opsonic powers of human serum before and after administration of the new drug to normal men showed that the blood is rendered bactericidal to the pneumococcus and that the opsonic power is not appreciably affected by administration of ethylhydrocupreinhydrochloride.

Aural Vertigo.—An abstract of Mr. Lake's address appears on page 27.

Eradication of Recurrent Cancer.—R. C. Lucas's patient had her left breast amputated for cancer, but the axilla had not been thoroughly cleaned out, and in 1897 she presented herself for examination on account of the presence of a mass in the other breast. She was then sixty-seven years of age. Examination at that time showed the presence of rather extensive recurrence in the left axilla, together with a mass in the upper and outer quadrant of the right breast and some lymphatic involvement in the corresponding axilla. Her health was very good, and simultaneous removal of the right breast together with thorough cleaning out of both axillæ was done with prompt recovery. Examinations at several years' intervals following this second operation showed no signs of any recurrence, though the masses removed had shown the condition to be one of scirrhus carcinoma. She died at the age of eighty-two years, fifteen years after the removal of the recurrent cancer, without having shown any signs of further return, her death being due to cardiac disease.

PRACTITIONER.

November, 1912.

The Inunction Treatment of Measles.—D. I. Connolly says that the general trend of opinion in the medical profession in regard to the use of inunctions of eucalyptus oil in the treatment of scarlet fever and measles, strongly recommended by Milne, is noncommittal. He reports in tabulated form the results he obtained in a large number of cases by this means during the period of one year. The patients were from the poorest class of the community, with all that this connotes as regards unhealthy, unhygienic surroundings, predisposition to disease, and diminished resisting powers. From this experience he deduces that the thorough rubbing in of eucalyptus oil all over the body, together with energetic local antiseptic applications to the mouth and fauces, are most useful adjuncts in the treatment of measles; that the mortality is decidedly lowered; that even when serious complications are present the treatment has a beneficial influence on the course of the disease. Careful and constant nursing and the maintenance of an even temperature of 65° F. are very important.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

November, 1912.

A New Reagent for Detecting Occult Blood.—R. F. Ruttan and R. H. M. Hardisty say that in orthotolidin we have a reagent for occult blood that is more satisfactory than benzidin on account of its greater delicacy, its more lasting color, and the fact that it can be made into a solution that retains its delicacy unimpaired for three or four weeks. The substance known as tolidin, or orthotolidin, is a crystalline, basic body of the aromatic series with melting point from 120 to 130° C., very soluble in water, easily soluble in alcohol and ether, and closely allied to toluidin and benzidin. They assert that it is superior to the reagents in general use for clinical work. While benzidin is equally good for the detection of blood in the feces and stomach contents, this is true only for freshly prepared solutions of benzidin, solutions of which lose fifty per cent. of their delicacy in twenty-four hours, while tolidin remains unchanged for three or four weeks. Another point in favor of tolidin is that when the blood is in small quantity the reaction increases gradually in intensity and persists longer than with the other reagents.

INDIAN MEDICAL GAZETTE.

November, 1912.

Developmental Defect.—L. Cook reports the case of a woman, about thirty years old, in whom he found absence of the right kidney, ureter, Fallopian tube, and broad ligament. The uterus was smaller than normal and pulled over to the left side. On the left side the organs were normal, except that the kidney was unusually large. The right ovary was situated above the brim of the true pelvis upon the psoas muscle and had attached to its anterior extremity a fibrous cord which passed downward and forward to the internal abdominal ring, having no connection whatever with the uterus. Cook takes this cord to be the remains of the "plica gubernatrix," the upper part of which normally produces the ligament of the ovary and the lower part of the round ligament of the uterus. The

condition was evidently due to the nondevelopment of the right Muellerian and Wolffian ducts, but whether the primitive secretory organ, the Wolffian body, was ever developed could not be determined.

BOSTON MEDICAL AND SURGICAL JOURNAL.

December 19, 1912.

Alimentary Aberrations.—P. F. Brown concludes his long and valuable paper with the statement that we have to-day in the alimentary application of the x rays as trustworthy a method of aiding our diagnostic knowledge as has been given us for many years, but that this method is only a factor making for diagnostic success in any given case. He fears that the practitioner of the future is in danger of becoming a clinical scientist, rather than a scientific clinician, through just such helpful agents as this. The physician's primary mission is still entered upon at the bedside, where he has little to aid him but his wits which he must use, and then he can utilize the aid given him by the laboratory.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 21, 1912.

Pulmonary Tuberculosis as an Obstetric Complication.—C. S. Bacon observes that our aim is to save and cure tuberculous women, if possible, but if we cannot save them we must, at least, prevent them from injuring others; we must protect the children from infection. To attain this requires concerted professional and social effort. From the viewpoint of public health and preventive medicine, the problem appears different from that which presents itself to the short sighted physician governed by the rules of custom. It is almost a moral law that pregnancy should be prevented either by celibacy or by sterilization. The only matter of doubt is the induction of abortion in these cases. Uniform treatment is impossible, because of ethical, legal, and professional considerations. Nevertheless, the care of the mother and the protection of the child call insistently for professional, philanthropic, and State cooperation.—Minor remarks that if an actively tuberculous mother has had a child, it should be separated from the mother, not perhaps absolutely, but as close to absolutely as it is possible to make it from the very beginning, excepting for one or two days, and there should be no nursing at all, as lactation is most disastrous to a tuberculous woman.—Dickinson suggests, as a means of sterilization, a cauterization by heat at each corner of the uterus by means of a sound with a little platinum tip, thus producing a stricture and an obliteration.—Bacon suggested that if it has been necessary to induce abortion in any particular case, sterilization should afterward be insisted upon, and should be thorough; a tubal sterilization by abdominal laparotomy or, preferably, by vaginal celiotomy.

Intradural Root Anastomosis for the Relief of Paralysis of the Bladder and Other Paralytic Affections.—See this JOURNAL for June 8, 1912, page 1224.

Cyanosis in Dementia præcox.—W. B. Cornell has found a cutaneous cyanosis in a large majority of dementia præcox cases, most frequently and most intense in the catatonic form, next in order in the hebephrenic, and then the paranoid. It is part of a generalized vasomotor disturbance consisting

in a phlebostasis, of unknown origin, and is variable within large limits, even in the same patient. Cyanosis is valuable in differentiating dementia præcox from manic depressive insanity, imbecility, hysteria, constitutional inferiority, and occasionally the organic psychoses.

Relation of the Infant Welfare Movement to Pediatrics.—See this JOURNAL for June 15, 1912, page 1294.

Properties, Uses, and Indications of the Various Carbohydrates Used in Infant Feeding.—See this JOURNAL for June 15, 1912, page 1293.

Diagnosis of Tuberculosis of the Kidney in Very Early and Very Advanced Cases.—See this JOURNAL for June 8, 1912, page 1229.

Use of Tuberculin in the Treatment of Surgical Urogenital Tuberculosis.—G. S. Whiteside says the treatment of any case, in any stage, by tuberculin is not as satisfactory as one could wish, being equally efficient with bacterin treatment of any other condition. Although a better method will probably be discovered, the various preparations of tuberculin may be used to advantage in the meantime, being mainly aids to surgical and other treatment, and, moreover, the source of disappointment at times even when used by competent persons. Much harm, often irreparable, may be done if tuberculins are not used with good judgment as to dose. The best preparation is the one which the surgeon is most used to, for it is necessary to be cautious, and to be guided by the results of personal experience. The guide should be the symptoms of the patient, carefully observed and correctly interpreted.

Recent Advances in Our Knowledge Concerning the Causes of Glycosuria.—T. B. Fitcher considers it unwise to accept as settled any new theory advanced to explain the cause of diabetes mellitus. We must, however, accept as positively proved that not only the pancreas, but also the adrenals (chromaffin system), thyroid, parathyroids, and pituitary have a very marked influence on carbohydrate metabolism. Although in a considerable percentage of cases of diabetes lesions of the pancreas have been found, it is apparent that morbid changes in that organ will not explain all cases, even when we take into account alterations in the islands of Langerhans. The essential and primary disturbance may be in one or another of the ductless glands. A marked correlation of the internal secretions of the ductless glands is beyond question. The internal secretions of the adrenals (chromaffin system) and pancreas mutually retard action. An important function of the adrenals is to set free the carbohydrates in the liver, and possibly in other storehouses also. Normally this influence is exactly balanced or counteracted by the hormone contained in the pancreatic internal secretion, resulting in a normal flow of sugar from the liver. If the chromaffin system is overstimulated, as it may be through the sympathetic nervous system, there is an overproduction of the "accelerator" hormone of the adrenals, and the "retarding" hormone of the internal secretion of the pancreas is overbalanced, the glycogen in the liver is rapidly set free and a hyperglycemia and glycosuria result. Pancreatic diabetes is produced

in a similar manner. The glycosurias in pituitary and thyroid diseases may be explained in a somewhat analogous manner. There are fewer adherents at present to the theory that hyperglycemia results from deficient consumption or oxidation of glucose in the tissues. Cohnheim's theory is in part correct, as may be shown, but the consensus favors the view that the hyperglycemia and glycosuria are dependent on the overproduction of sugar in the liver.

Surgical Treatment of Chronic Seminal Vesiculitis by Vasotomy (Belfield Operation.)—See this JOURNAL for June 15, 1912, page 1294.

Umbilical Hernia.—J. W. Kennedy makes a strong plea for early operation in these cases and insists that the treatment must practically be prophylactic—must be given not only before there is any strangulation of the viscera, but before the hernia becomes of menacing size.

Urinary Calculi.—Max Kahn and Jacob Rosenbloom have shown by recent analysis that the majority of renal calculi are composed of insoluble salts of calcium and not of uric acid or urates. Antacid treatment is therefore not indicated. A course of acid treatment is more rational.

Chancre Developing Four Days after Salvarsan Injection.—Melvin Rosenthal reports a case in which there was the development of a disease, presumably syphilitic, in an individual giving repeated negative Wassermann reactions. Other points of interest are that a man suffering from the direct effects of syphilis should contract a chancre, and that a chancre should develop four days after an intravenous injection of salvarsan. The writer insists that there is no possibility of faulty technic or other errors.

MEDICAL RECORD.

December 21, 1912.

Marginal Sounds in the Diagnosis of Pulmonary Tuberculosis.—G. E. Bushnell observes that the expert clinician learns by experience to attach no great importance to the marginal sounds, whatever his theory of their causation may be. When Janeway said, "We may hear fine crepitation which does not mean very much," and when Lawrason Brown promulgated the dictum that "physical signs at one apex should be considered to be due to tuberculosis until the contrary is proved; physical signs at one base should be considered nontuberculous until the contrary is proved," perhaps marginal sounds were in mind. The marginal sounds have been a stumbling block to many physicians. The writer entertains the hope that the investigations recorded in his paper will aid in clearing up doubts and in removing these stumbling blocks.

Selection of Female "Risks" in Whom Hysterectomy and Ovariectomy Have Been Performed.—H. D. Ingalls has limited his observations absolutely to those women in whom the uterus and ovaries, the uterus alone or the ovaries alone, have been removed. The undesirable features of this class of cases include the great disturbance to the nervous system owing to the fact that we induce a premature and forced menopause; malignant degenerations and changes in other organs appear; hernias are more frequent; there are great changes in personal appearance, mental characteristics, and

in temperament as a result of the so called unsex-ing operation. None of these features is proved. He concludes that these risks may be safely written under the following conditions: Sure and accurate knowledge that no malignancy was expected or found at the time of operation; that the operation did not reveal any abdominal or other complication present; that sufficient time—at least two years—has elapsed to be sure that all nervous and physical disturbances resulting from the operation have entirely disappeared; and that the applicant is up to the required standard in all other respects.

Sacral Kidney Simulating Acute Appendicitis.—M. S. Kakels reports a case in which the clinical picture and symptoms led to the diagnosis of acute appendicitis. A Kammerer incision was made, and only after the abdomen was opened and a slightly congested appendix removed was the true nature of the case revealed. When the coil of intestines was pushed aside a retroperitoneal mass was exposed, situated over the right sacroiliac synchondrosis a little to the right of the median line. An incision into the mass revealed a sacral kidney which took the place of the right kidney, which was missing. The writer excuses the error in diagnosis, from the rarity of sacral kidney and the symptoms present, and emphasizes the importance when diagnosing acute abdominal conditions of bearing in mind the possible existence of an ectopic kidney.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

November, 1912.

Tertiary Syphilis of the Liver.—T. McCrae concludes that the clinical picture of hepatic syphilis is a varied one with prominent general symptoms in many cases, of which loss in weight is marked. The duration of the symptoms may be prolonged, and there may be intermissions in which temporary improvement occurs. Fever is a common symptom. In the majority of cases features suggestive of hepatic diseases are noticeable. Most common is tumor or enlargement which may suggest malignant disease, general enlargement with nodulation or the presence of large rounded masses. The relatively marked enlargement of the left lobe, compared with the right, is a striking feature. Other diseased conditions of the liver may obscure the diagnosis, or the condition of the liver may not be correctly interpreted. An occasional difficulty is ascites. Important aids are a knowledge of hepatic syphilis and the therapeutic test. The syphilitic process can be influenced by treatment, the results (cirrhosis, amyloid) never.

Maltose in Infant Feeding.—J. L. Morse recalls that the sugars commonly used in infant feeding are lactose, saccharose, and maltose, all being disaccharides, lactose consisting of dextrose and galactose, saccharose of dextrose and levulose, and maltose of dextrose and levulose, which are not absorbed as such in the intestines under normal conditions, but are first split into their respective monosaccharides by special ferments (maltase, saccharase, and lactase) which are formed in the mucous membrane of the small intestine. Lactose is preferable to maltose for the feeding of normal infants, but there is a type of intestinal indigestion due to the fermentation of sugar, in which maltose is better borne, especially during convalescence. In

the treatment of diarrhea due to the gas bacillus and similar organisms, maltose is contraindicated. Maltose is less useful than lactose in diarrheas caused by the dysentery bacillus.

Bismuth Poisoning.—L. M. Warfield finds that bismuth salts, like lead and mercury salts, may produce definite and characteristic symptoms of poisoning in persons that are more or less susceptible. The whitish diphtheritic membrane that caps the ulcers is peculiarly characteristic of bismuth stomatitis. The visceral lesions caused by bismuth also demonstrate that it is one of the metallic poisons and should be cautiously used.

Weight Curves in Typhoid Fever.—W. Coleman has found that loss of weight occurs in practically all cases of typhoid fever but the amount of loss varies, the total loss being greater the severer the infection and the longer the duration. His experiments with high calory diet have demonstrated that it is possible to maintain patients suffering from typhoid fever in weight equilibrium throughout the entire course of the disease by giving them sufficient nourishment.

Alimentary Oversecretion of Chronic Ulcer as Shown by the Lactose Test Meal.—D. Roberts concludes that the demonstration of an alimentary oversecretion is highly suggestive of a chronic gastric ulcer. It must be determined by future observations whether a low ration occurs in a case of ulcer of this type. It cannot be stated on this comparatively small number of cases (four) future observations whether a low ratio occurs in conditions other than ulcer. In a few instances the writer found the gastric juice three times the amount of the test meal residue. In those cases in which ulcer has been diagnosticated, a ratio as low as this has proved the exception.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
OF WOMEN AND CHILDREN.

November, 1912.

Maternal Feeding.—J. P. Sedgwick well puts it, "Maternal feeding should be the keystone of the propaganda for the prevention of infant mortality." From the study of replies received in answer to questions asked, the author concludes that the number of mothers who nurse their infants can be increased. The methods by which this may be done are discussed at some length. The article concludes with a request that all join in the dissemination of information concerning the importance, possibility, and technic of breast feeding.

Ophthalmia in the Newborn.—A. W. Tallant, from a study of thirty-seven cases, found that secondary cases developing some five days after birth are of distinct importance. She advises that their number could be greatly diminished by the repetition of some prophylactic treatment at intervals of two or three days through the puerperium, when gonorrhea is suspected in the mother. It is also stated that the records of the asylums for the blind in this country show that the proportion of their inmates whose affliction is attributed to ophthalmia neonatorum is not falling off to any extent. Consequently the necessity of prophylaxis at birth should be vigorously pushed on all sides.

The Care of the Nose and Throat in Children.—H. Hays is of the opinion that there are no

tonsils of so little value during the first two years that they should be removed, unless they cause definite symptoms, directly or reflexly. If, however, it is decided to remove the tonsils, enucleation is held to be the only operation permissible.

ARCHIVES OF DIAGNOSIS.

October, 1912.

Diagnosis of Mental Disorders Associated with Cerebral Syphilis.—Francis M. Barnes, Jr., points out the fact that a syphilitic lesion may often be unexpectedly found to be the anatomical basis of a mental disorder previously supposed to be of the functional or nonspecific organic classes. Cerebral syphilis may develop in a brain already affected with mental disorder, e. g., dementia præcox. It may also occur in conjunction with other organic brain diseases, such as arteriosclerosis and senile dementia. The differential diagnosis in life is often difficult or even impossible, as there is no mental symptom complex characteristic of cerebral syphilis.

New Method of Duodenal Intubation.—Albert Abrams and George Jarvis, after mentioning the observation of Knapp that the duodenum may be entered with the ordinary stomach tube in cases of complete insufficiency of the pylorus, point out that the pylorus can be dilated for the passage of the tube through a reflex elicited by making firm pressure on both sides of the fifth dorsal spine by means of an instrument with two prongs designated as the "radicular pressor." The reflex is of brief duration—not over one minute—and is momentarily exhausted if the pressure exceeds one half minute. In the absence of an assistant, concussion of the fifth dorsal spine suffices to open the pylorus. Before its introduction into the duodenum the tube, while still in the stomach, is cleansed by means of a syringe filled with some colored fluid. When the duodenum is then entered, aspiration shows absence of the colored fluid, thus confirming the passage of the pylorus by the tube. The fluid from the duodenum also differs from that obtained from the stomach in that it is alkaline and will respond to tests for amylase, trypsin, and steapsin. The pressure at the fifth dorsal spine, while dilating the pylorus, increases the tone of the stomach proper so much that it may be delimited by percussion owing to the dullness arising through pressure on the air or gas in the organ. The stomach is also temporarily displaced from the horizontal to the vertical position.

Avulsion of Mesentery.—H. Beeckman Delatour reports a case and mentions as diagnostic signs of this condition: 1. A blow tending to tear rather than crush the abdominal contents—a glancing or sliding blow; 2, evidence of internal hemorrhage; 3, slight or no abdominal tenderness. Muscular rigidity may be either present or absent. If time enough elapses, signs of acute intestinal obstruction will develop; these must not be mistaken for peritonitis.

Domelike Appearance of Abdomen in Differential Diagnosis of Extrauterine Pregnancy.—A. Shulman believes this sign pathognomonic, though it is still unmentioned in textbooks. It is caused by accumulation of blood in the pelvic and abdominal cavities in sufficient quantity to force the overlying

structures upward and outward in the direction of least resistance. If there is a history of atypical bleeding, fainting spells, pains on one side, and a rapid, feeble pulse which perhaps has later returned to normal, all doubts as to the diagnosis are removed. In ovarian cysts there is a ruggedness and asymmetry of abdominal contour distinguishable from the condition in extrauterine pregnancy; large fibrocystic tumors show fluctuations limited to certain areas; adiposity can be excluded by placing the hands upon the sides of the abdomen and bringing them together, thus gathering up the walls in a fold and separating them from the viscera; in ruptured ovarian cyst and large cysts of other viscera a good history will furnish the means of diagnosis.

ARCHIVES OF INTERNAL MEDICINE.

October, 1912.

Fat Metabolism of Lipomas.—H. G. Wells states that satisfactory evidence is lacking to establish the generally accepted statement that simple subcutaneous lipomas do not give up their fat to the body during emaciation. There is no question, however, that this is true for fatty sarcomas. All reported analyses indicate that the fats of lipomas are identical with those of normal fat deposits.

Investigation of Value of Hexamethylenamine.—C. F. Burnam states that even after rather large doses of hexamethylenamine, there appear in the bile, sputum, saliva, and cerebrospinal fluid only traces of the drug, less than one to 150,000. It was also ascertained that *in vitro* a one to 50,000 formaldehyde solution, and a five or ten per cent. hexamethylenamine solution, are both incapable of destroying or inhibiting the growth of various microorganisms, such as the streptococcus, staphylococcus, and typhoid bacillus. With these facts as basis, Burnam asserts that the use of hexamethylenamine for the curing or bettering of, or as a prophylactic against infections of the bile passages, respiratory passages, and cerebrospinal system is illusory. He has no explanation to offer, however, for the clinical and bacteriological improvements reported by others. As regards the elimination of the drug in the urine, it was found that on the customary doses of from five to ten grains, three times a day, not more than two patients out of ten showed any decomposition of the drug into formaldehyde. At least sixty per cent. showed such decomposition, however, when from twenty to thirty grains were given every four to six hours. Clinically, it is the free formaldehyde which is the effective agent. Its liberation appears to be due to some specific activity of the renal epithelium. The greatest decompositions were observed in highly acid urines, but in definitely alkaline urines large amounts of formaldehyde were also occasionally met with. There is no fixed dose of hexamethylenamine. The only toxic effect is occasioned by the liberation of formaldehyde, and when this does not occur, it is safe to increase the dose until it does appear. The proper treatment is to give a dose just insufficient to cause bladder irritation; improvement will then generally follow so rapidly that long continued use of the drug will not be required.

Value of Glycyltryptophan and Tryptophan Tests in Gastric Diseases.—F. S. Smithies found

more than one third of eighty-seven cases of gastric cancer to give positive glycyltryptophan reactions; more than one fourth were lactic acid positive, and about one thirteenth of the number gave the tryptophan test. Diagnosis of malignant disease was in each case quite possible, independently of these chemical reactions. No other class of gastric diseases, however, gave a positive glycyltryptophan test as frequently as cancer.

Experimental Study of Racial Degeneration in Mammals Treated with Alcohol.—C. R. Stockard gave guineapigs alcohol by inhalation to the point of beginning intoxication for an hour at a time, six days a week. Forty-two matings of alcoholic guineapigs gave only eighteen young born alive, and of these only seven, five of which were runts, survived for more than a few weeks. Nine control matings gave seventeen young, all of which survived and were normal, vigorous individuals.

MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

October, 1912.

Factors Modifying Blood Pressure in Tuberculosis.—F. M. Pottenger points out the fact that the blood pressure is lowered in pulmonary tuberculosis and becomes progressively lower as the disease advances. Low pressure is favored by the action of the toxines, which tend to produce vasodilatation, the disturbed action of the diaphragm, and particularly, as the disease becomes advanced, by the weakness of the heart muscle and general wasting. The altered diaphragmatic action is operative through the dilatation of the splanchnic veins it engenders, the suction effect upon these veins which is normally produced by the contractions of the diaphragm being lessened as the result of the relative immobility of the chest on the side involved. Tending to antagonize the low pressure factors are others which favor high pressure, viz., the increase in the frequency of the heart beats, the cardiac hypertrophy, and the thickening of the arterial walls due to the continued circulation of toxines.

High Blood Pressure Arising from Nervous Strain in Diseases of Nervous System.—See this JOURNAL for July 20, 1912, page 149.

Treatment of Pulmonary Tuberculosis by Compression of Lung.—M. E. Lapham discusses in particular the difficulties and dangers attending the use of this measure. A careful estimate of the degree of nitrogen pressure is required, as insufficient pressure accomplishes little and may possibly cause localized hyperemias, thus favoring hemorrhage, while excessive pressure reacts upon the digestive functions by interfering with the portal circulation, may weaken the heart action, induce neurasthenia, cause pain, and cripple the action of the other lung. It is always possible that a new standard of pressure may have to be adopted in a given case. Danger of penetrating the lung exists when the pleural surfaces are too adherent to be separated, and this danger is not confined to the first treatment, but is imminent every time one tries to renew the compression, because of the possibility that the cushion of nitrogen may have failed to keep the surfaces apart. Many cases have been reported of repeated punctures, as evidenced by cough and expectoration of blood, without any harm; but there have also been cases of sudden death, sometimes even before

the nitrogen was turned on. These fatalities may be ascribed either to reflex respiratory arrest or to gas embolism. The latter is favored by canalization of the pulmonary veins when they are held out by fibrosis of the lung tissue, as well as by the negative pressure in the chest during inspiration, and has occurred as late as the twentieth filling in patients who had never presented any difficulties. Spengler advises the use of the x rays in cases with adhesions, to make sure that the nitrogen cushion is thick enough to keep the lung from being punctured. Without this information, only the readings of the manometer can give guidance for the location of the point of the needle, and these are sometimes misleading. The point may actually be in the pleural cavity without the manometer showing any excursions, adhesions blurring the effect of the respiratory efforts.

Ductless Glands as Factor in Production of Racial Differences.—A. M. Crispin collates facts tending to show that the internal secretions play an important rôle in the adjustment of the animal organism to environmental influences. These influences being dissimilar in different localities, differentiation occurs, and the most advantageous of the resulting changes are transmitted to succeeding generations.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, March 18, 1912.

The Vice-President, Dr. RANSFORD E. VAN GIESEN, in the Chair.

Removal of Uterus and Vagina for Complete Prolapsus.—Dr. HERMAN J. BOLDT presented a uterus and vagina removed four days previously from a patient fifty-eight years old, who, notwithstanding her advanced age, was compelled to undergo much physical exertion. Unlike most sufferers from this condition, she was the subject of considerable vesical disturbance. During the first two days the patient complained of hypogastric pain, which, in Doctor Boldt's experience, was unusual after such operations. At the present time she was doing well, and was up and about.

Ovarian Cyst with Complete Twist of the Pedicle.—Doctor BOLDT presented a second specimen, an ovarian cyst removed two days previously. The tumor, which belonged to the left ovary, had extended two fingers' breadth above the umbilicus. The interesting feature in connection with the specimen was that a complete twist of the pedicle existed without the patient's having symptoms. The tumor showed the effect of the twist in the dark color of its contents and the appearance of its walls. Yet the patient stated that she was entirely free from pain; nor was there any pain upon palpation of the abdomen when she was examined.

The Treatment of Bleeding from Gynecological Sources.—Doctor BOLDT said that before deciding on any treatment it was necessary to determine the source of the hemorrhage; otherwise, one could not meet the condition intelligently. Commencing with external sources of bleeding, he mentioned varices, which, he said, were a cause almost exclusively in pregnant women. Sometimes the hemorrhage was very profuse, and in two instances which he had met with the patients were almost exsanguinated. Here inspection at once showed the condition. Aside from pregnancy, bleeding could occur only from injury to a vein. This might result from scratching, and he had seen one case of the kind. Bleeding from erosion or ulceration of the vagina caused by pessaries could usu-

ally be remedied by the application of a silver nitrate solution after removal of the pessary. Having referred to bleeding in connection with senile atrophy of the vagina, he went on to speak of that due to carcinoma in this situation. Here the treatment would depend on how far the growth had advanced at the time of its discovery. If this was early, complete removal would be indicated; where this was impossible, palliative treatment. Thorough curetting should be done with a sharp curette, and afterward acetone or iodine applied. Slight bleeding from the vaginal portion of the cervix, due to erosions, might occur after sexual intercourse, and was best treated by the application of one per cent. solution of silver nitrate. Between syphilitic and tuberculous ulcerations it was difficult to distinguish, except with the aid of the microscope. In the former, after the bleeding had been stopped by tamponing, specific treatment should be instituted. In tuberculous ulcerations the treatment was by curetting, followed by the use of the galvanocautery, if the ulcer were confined to the vaginal portion of the cervix. Myomata of the cervix were sometimes a source of hemorrhage. If large, their extirpation was a serious operation. If small growths were allowed to remain, the best treatment consisted of the use of copious hot douches and the internal administration of ergot. To stop the bleeding from lacerations of the cervix resulting from delivery (the diagnosis of which could be made upon inspection and with the use of retractors) all that was necessary was one or two sutures. Hemorrhages from the body of the uterus might be divided into two classes: Those where the organ was of normal size and those where it was enlarged. In the first of these was profuse menorrhagia without any definitely assignable cause, and this he was accustomed to treat by means of a strip of gauze medicated with ten per cent. phenol, and wrapped about an applicator syringe, which, after its introduction into the uterus, was pushed off with a forceps and allowed to remain for twelve hours. This plugging was removed by means of a string left attached to the gauze. In the second class we had hyperplasia of the uterus, which was first described by Pallen, some thirty-five years ago, under the name of "fibrosis of the uterus." In many of the cases nothing could be found in the endometrium. A good plan of treatment was the local application every third, fourth, or fifth day of pure phenol impregnated into an intrauterine gauze tampon which was allowed to remain in the uterus for from eight to twelve hours. In obstinate cases a few drops of a fifty per cent. solution of zinc chloride might be employed in place of the phenol, an alkaline powder, such as sodium bicarbonate being used in the vagina to prevent corrosive action by any of the solution escaping from the uterus. For inflammatory conditions of the endometrium, curetting, followed by suitable local applications, was of service. In the case of submucous myomata and of polypi of the uterus it was often almost impossible to make a diagnosis when these were of small size. When this could not be done otherwise, it was advisable to slit up the cervix and make a digital exploration. If a moderate sized polypus were found, the cervical incision usually sufficed for its removal; if a myoma, the incision was extended, and the growth enucleated. Hydatid mole gave an impression of elasticity, feeling somewhat like a toy balloon to the touch. In ectopic gestation immediate operation was generally called for, and abdominal incision was always to be preferred to the vaginal. In premature separation of the placenta the patient was attacked with sudden faintness, sometimes amounting to collapse, and there was a rapid increase in the size of the uterus. The indication was to empty the latter as quickly as possible. In placenta prævia, where this was marginal the patient, with the exercise of special care, could usually be carried to full term; but if it were central, or nearly so, the emptying of the uterus was called for. Sometimes we had to make use of tight tamponing until dilatation of the cervix could be accomplished, while in some instances vaginal, or even abdominal Cæsarean section was indicated. When there was atony of the uterus Momborg had recommended constriction of the trunk with rubber tubing, on the principle of the Esmarch bandage. If the patient had any heart trouble, however, this procedure was contraindicated. A myomatous uterus could be diagnosed after the expulsion of the child by means of bimanual examination. In rupture of the uterus if the rent were small, and the child still in the uterus, loose tamponing was preferable to

abdominal section. With a large rent, abdominal section was imperative.

Study of 139 Cases of Induction of Labor with the Champetier de Ribes Bag.—Dr. GEORGE L. BRODHEAD, having described these bags and the technic of their introduction, said that the series of cases was made up of seventy-five private and sixty-four hospital or outdoor patients, of whom forty-eight were primiparæ and ninety-one multiparæ. At the time of the induction of labor seventy-five of the women were at, or beyond full term, fifty-three between eight and nine months of pregnancy, eight between seven and seven and one half months, and three between six and six and one half months. Contracted pelvis was the principal cause for which the procedure was undertaken (in forty-one of the cases), and the various other causes were enumerated. From the total number of cases it was necessary to subtract four in which the membranes had already ruptured and one in which the time of rupture was not known; leaving 134 cases. In introducing 103 bags in these cases the membranes were ruptured in six cases, giving the very small percentage of three of accidental rupture. Sizes number two and three of the bags were found the most useful. In ninety per cent. of all cases labor was induced by the use of not more than two bags, and in only six instances were three required. Anesthesia was employed in introduction in 16.6 per cent. of the cases, fourteen per cent. in private work and twenty per cent. in hospital work. The higher percentage in the latter was due to the necessity of giving an anesthetic when demonstrating the technic before students. As to the time required for the beginning of labor, in twenty-three of the forty-eight primiparæ labor commenced at once (forty-nine per cent.), in thirty-six, within twelve hours (seventy-six per cent.), and in forty, within thirty hours (eighty-five per cent.). Among the multiparæ these percentages were respectively thirty-one, sixty-eight, and eighty-nine. The average time in primiparæ was eight hours, twenty-two minutes, in multiparæ, ten hours, twenty-two minutes, and in all cases, nine hours, forty-one minutes. The average duration of labor was twenty-two hours, nine minutes, in primiparæ, fifteen hours, fifty-two minutes, in multiparæ, and eighteen hours, two minutes in all cases. Forty-nine per cent. of the labors terminated normally, in twenty-one per cent. the low forceps operation was done, in eleven per cent. the median forceps, in three per cent. the high forceps, in ten per cent., version, and in three per cent., breech extraction. Craniotomy and Cæsarean section were each performed in one case.

The possibility of change of presentation after the introduction of the bag should always be borne in mind in using this method. This accident occurred in seven of the 139 cases (five per cent.), though in only one was the outcome changed because of it. In that instance a vertex presentation altered to a breech, and the child, which was delivered by breech extraction, was stillborn. Four of the seven cases were in private work and three in hospital work. In one case a vertex presentation, left occipito-anterior, changed to a breech presentation, and later to a transverse, and the patient was delivered by podalic version. In another instance a right occipitoanterior vertex changed to the transverse position. By external version the vertex was brought over the brim of the pelvis, when the membranes were ruptured, and one hour later normal delivery took place. Fortunately the membranes had remained intact, and the necessity of version for the transverse position was thus obviated. In two of the seventy-five private cases presentation of the cord occurred. In one the child was saved, but in the other the child, though born alive, died at the end of twenty-four hours, evidently from meningeal hemorrhage. In four also of the hospital cases the cord prolapsed, with an infant mortality of three; giving a percentage of 4.3 cases in the 139 cases, for this complication. The hospital records of 5,300 obstetric cases (not including these 139) showed only one per cent. of cases of cord prolapse. Such prolapse was, therefore, apparently four times as frequent with the use of the bag. It was to be remembered, however, that in the series of 139 cases labor was induced in forty-one for contracted pelvis, in nineteen for disproportion between the head and the pelvis, and in three for hydramnion, and that in three of the six cases of cord prolapse there was either disproportion or deformed pelvis. In one case of the 139 a curious accident occurred. For the purpose of inducing

labor for flat pelvis in a multipara at eight months a No. 3 bag was introduced at 12.30 p. m., and one hour later the membranes ruptured spontaneously. There were no labor pains, however, and when on the following day the patient was examined it was found that the bag had slipped up into the uterus, above the child's head. By means of traction upon the stem the bag was then brought down into the cervix, the first stage of labor began in an hour, and in three hours the labor was completed normally. If the stem had been tied to the vulva pad, as was usually done, the accident would not have happened, and though in this instance no harm had resulted, it was well to guard against such occurrences.

In private work the morbidity was practically nil, and in hospital work very slight. In some ten of the hospital cases there was more or less febrile temperature following delivery, but in only three of these could the temperature be considered as having to do with bag morbidity. In the first of the cases, in which labor was induced at eight months for chronic nephritis, the patient was in very poor general condition, and a slight daily rise of temperature for several weeks was attributed to this. In the second case labor was induced at eight and three quarter months, also for nephritis. The patient was delivered by version of a seven pound child which had evidently been dead some time. On the fourth evening the temperature rose to 104° F., but, after that, gradually became reduced to normal, and on the twelfth day she was discharged in good condition. In the third case labor was induced at the eighth month for chronic endocarditis and poor general condition, and the patient was delivered normally of a four pound child, deeply asphyxiated, which died on the following day. The temperature ranged between 101° and 103° F. for the first four days, and then became normal. As the power of resistance was very low in the first and third of these patients, on account of their poor condition, temperature under any circumstances was not surprising. The total mortality among the children amounted to ten deaths in the seventy-five private cases, but as six of these could be excluded, the real number of deaths attributable to the bag method of inducing labor (including one case of prolapsed cord) was four, or 5.3 per cent. In the hospital cases the infant mortality was twenty-two in all. Here ten deaths could be reasonably excluded; leaving twelve, or a mortality of twenty per cent. If, however, we subtracted three cases of prolapsed cord and two cases of difficult breech extraction, the mortality would be eleven per cent.; a death rate which still compared unfavorably with that in private work. While three mothers in the private cases died from eclampsia, and one in the hospital cases from chronic nephritis and the toxemia of pregnancy, in none of these was bag induction responsible for the fatal issue. The maternal mortality could therefore be said to be nil.

Septic Puerperal Infections.—The first part of this paper, by Dr. JOHN O. POLAK, was devoted to the etiology and pathology of such infections, and the statement was made that in his experience the high mortality in general practice, and especially the morbidity in puerperal sepsis, was produced by medical men, and was due to insufficient disinfection of the hands, together with a tendency to undertake operative delivery, often in the absence of any positive indication, before complete dilatation of the passages had been secured. From midwives there was less trouble of this kind, since they did not attempt operative procedures. In entering upon the second portion of the paper he said that each case of post partum or postabortal infection should be studied individually, and an accurate diagnosis be made of the clinical, bacteriological, and blood findings, before any treatment was instituted. In this examination we should determine, first, whether the infection was confined to the genital canal; second, the site of the local lesions, whether in the uterus or beyond it; third, the nature of the intoxication present; fourth, what natural or individual resistance the patient had. A well contracted uterus, with a closed cervix, should not be entered, but under other conditions a digital exploration should be made of the interior of the uterus to ascertain its contents. In putrid or saprophytic endometritis, associated with a decomposition of the placental tissues, secundines, or blood clots within the cavity, and which produced general symptoms essentially toxemic in character, the uterine contents might (in pregnancies after the seventh week) be removed with the finger or a placental

forceps. When the finger had demonstrated that the cavity was empty the uterus should be firmly packed with sterile gauze which had been previously soaked in pure tincture of iodine and squeezed to remove the excess. This pack was to be left in position for from twenty to thirty minutes, and after its removal no further intrauterine instrumentation or medication should be resorted to. If the cervix were found open and the body of the uterus empty and well contracted, and if the endometrium were smooth, as was often the case three or four days after delivery, the digital examination might be followed by a single intrauterine douche of normal salt solution. The principles of the treatment after the condition of the uterus and the extent of the adjacent local lesions had been determined might be summarized as follows: First, the destruction of the infecting organisms, or the diminution of the force of the invasion, at the site of the primary infection; second, stimulating the resisting power of the patient; third, the destruction of organisms in the blood stream; fourth, operative measures. In carrying out the first of these principles efficient drainage was a most potent factor, and it was therefore advised that the bed should be so raised that the patient would be kept in the Fowler position. In reinforcing the resistance of the patient, in addition to food and stimulation, fresh air and sunlight were of very great practical value. For the third point considerable reliance could be placed on vaccines. Polyvalent vaccine should be administered at once, and later, autogenous vaccines, which might be repeated at such intervals as the existing conditions indicated. Any operative measures which might be undertaken would obviously be dependent upon special indications present.

Dr. HENRY C. COE said he could not assent to the somewhat dogmatic tone of the papers which had been presented. Experiences certainly varied. Certain conditions which Doctor Boldt had described, and their treatment, were well recognized; but we met many cases of hemorrhage, particularly in young women, which were dependent upon no condition that we were able to determine. In some such cases he had tried ligation of the uterine arteries, but this procedure had not proved of permanent value. In every instance the hemorrhage had recurred, and in one or two cases he had resorted to hysterectomy. He fully agreed as to the value of splitting up the cervix for making the diagnosis of myoma or polypus of the uterus. These were cases which gave great trouble to the general practitioner. As to the use of the modified de Ribes bag, he had not had the favorable experience of Doctor Brodhead, and he always approached this little operation with some degree of trepidation. While his mortality among the mothers had been nil, his percentage of deaths in the children was larger than that given in the paper, and in this connection he narrated two cases where the children were born dead. He conceded, however, that in some instances this method of inducing labor was essential. He could not altogether agree with some of Doctor Polak's contentions. At Bellevue Hospital they had many cases of sepsis following criminal abortion, and in most instances of this kind Nature had built up such protective walls that they had no hesitation in invading the exudate present. He approved Doctor Polak's conservative stand in regard to curetting and douching, believing his objections well taken. On the whole, however, Doctor Coe thought he was rather too optimistic in his views.

Dr. J. CLIFTON EDGAR said he had employed Mombert's belt in three cases, and they had given him a warning. It required the utmost care to prevent syncope when the belt was withdrawn, as it caused anemia about the heart. He agreed with Doctor Polak that the physician was more apt to be responsible for puerperal sepsis than the midwife. His observations at the Jewish Maternity Hospital, where he was consulting obstetrician, had convinced him of this. He also agreed that polyvalent serum should be administered at once, on account of its sustaining effect, which gave a chance for the formation of antibodies. Autogenous vaccines could be given after the diagnosis had been established. Doctor Brodhead's experience had led him to prefer the use of the modified de Ribes bag to other methods, and probably most of us had also come to the conclusion that it was preferable. Some, however, advocated Krauss's method of introducing a catheter. As to the size of the bag or bags to be employed, he thought that Doctor Brodhead had taken the right position. While

the No. 2 and No. 3 bags were not as efficient as the larger ones, with them there was less danger of a change in the position of the fetus occurring than when the larger No. 4 and No. 5 were used. The beginner in this method was apt to rupture the membranes, but with proper care there was but little risk of this. The bivalve speculum should be employed when making the introduction, and he rarely found it necessary to give an anesthetic, even in his clinic at the Manhattan Maternity. When the cervix was not sufficiently dilated to admit the bag, Krauss's method might be used, or gauze introduced, for causing dilatation. He did not believe in doing any injury to the cervix. While the uterus had been known to be ruptured by a Barnes bag, he had never seen any harm result from the rupture of a modified de Ribes bag. As to the life of such bags, some tests which he had made showed that four boilings were about all that they could stand.

Dr. AUSTIN FLINT, Jr., discussing the question of the induction of premature labor, said that the crux of the matter hinged on two points, namely, first, the period of pregnancy at which it was done, and, second, the condition of the cervix, irrespective of the period of pregnancy. Bags worked well in favorable cases, but not in unfavorable ones, where the time was more than a month before term or where there was a long, hard cervix. Here it was advisable to temporize, if possible, by introducing a bougie or leaving a gauze tampon in position for twelve hours or more before resorting to the use of the bag. The indications for employing the latter should always be borne carefully in mind. Unfortunately, however, these bags were now being more and more used for insufficient causes. So, too, was Cesarean section done too frequently, and this was all wrong. He believed that Doctor Polak was right in urging that early exudates should be left alone; later we could open up freely. The use of iodine, as practised by him was new to him (Doctor Flint). Personally he had been in the habit of employing alcohol.

Dr. RALPH W. LOBENSTINE said that in the induction of labor in a primipara, with the cervix long, tough, and undilated, he did not think bags were as satisfactory as the introduction of the bougie into the uterus, combined with tight vaginal tamponage. In all other cases he was an ardent advocate of the rubber bag. He agreed with Doctor Flint that at the present time the induction of labor was practised entirely too frequently, and without adequate medical reasons. In resorting to this procedure in the case of a muscular woman, especially a primipara, with only a moderate pelvic dystocia, one should always keep in mind the fact that the unyielding cervical muscle, when Nature had not as yet prepared it for labor, might cause more actual difficulty than the dystocia. After the complete premature rupture of the membranes he believed in starting up labor within twenty-four or forty-eight hours, as a longer delay would increase the dangers to both mother and child. One point of caution: When the bag was being filled one should always remember the possibility of pinching the cord. As to Doctor Polak's paper, Doctor Lobenstine said that the digital intrauterine exploration was undoubtedly of great value, provided it could be carried out aseptically and with the utmost gentleness. Personally, he had been using the tincture of iodine for several years in the class of cases mentioned and had found it more satisfactory than alcohol. He firmly believed in the value of an exploratory abdominal incision in certain doubtful puerperal pelvic infections. Without this, in some instances, an exact diagnosis as between an extraperitoneal and an intraperitoneal condition, was impossible.

Dr. SAMUEL W. BRICKNER, having referred to the small number of Doctor Brodhead's cases (six per cent.) in which the bags failed to induce labor, and discussed what was best to be done in cases of this kind, stated that in general his own experience had been much the same as that of Doctor Brodhead. Of late he had been trying the rectal tube, as advocated by Little of Montreal, and had found it exceedingly useful. In septic puerperal infections his experience with vaccines had been different from that of Doctor Polak. Both with polyvalent and autogenous vaccines his results had been practically nil; he had not observed any benefit whatever from their use. Patients might get well, however, whether these agents were employed or not; so that it was somewhat difficult to know what value to assign to them. In cases of puerperal infection he believed that, except for vital indications,

such as the removal of pus, the less surgical interference there was, the better off the patient would be.

Dr. W. H. W. KNIPE mentioned a case of gynecological bleeding which evidently depended on too much alcohol periodically. The patient had passed the menopause, and he expected to find carcinoma of the uterus; but a careful examination and the use of the curette revealed nothing whatever. An extended study of the case showed that the bleeding came on whenever she indulged too freely in stimulants. In inducing premature labor his own plan of procedure was to begin with a large soft rubber tube, inserted in a zigzag manner, and finish up with the bag; and this seemed to work very well. His results with these bags had been good, and he had found nothing to take their place. In cases of puerperal sepsis he was accustomed to employ gauze saturated with Churchill's tincture of iodine (one half strength), which he left in the uterus for two to three hours, and follow this up with a seventy per cent. solution of alcohol. His impression was that after the germs had once got into the blood stream we could do very little either with vaccines or anything else.

Doctor BRODHEAD said that the reason why he took up the use of the bag was because he had ruptured the membranes (a very undesirable complication) so frequently with the bougie. He regretted that Doctor Coe had expressed himself so pessimistically. It was only by the study of a large number of cases that we could arrive at any definite conclusions. When eclampsia or other emergency was present he was accustomed to employ both the rectal tube and the bag, but ordinarily the latter was sufficient. He believed that if premature induction of labor were resorted to in all suitable cases, Cæsarean section would be much less frequent than at present. Earlier than the eighth month, however, the latter operation gave much the best results.

Doctor Polak, in closing, said that he made use of iodine in only one class of cases, namely, where the decomposing matter within the uterus had been removed by the finger. He never employed it in streptococcic infection or where the endometrium was smooth. The special point that he wished to make was that in every case a complete blood count and blood culture should be obtained.

Letters to the Editor.

WEISMANN'S CELL DIVISION THEORY.

NEW YORK, December 26, 1912.

To the Editor:

The Bradshaw Lecture on the Biology of Tumors, by C. Mansell Moullin, M. A., M. D. (Oxon.), F. R. C. S., reported in the *British Medical Journal* for December 7th, contains many interesting and instructive passages, indicating in the author a profound knowledge of the subject dealt with.

In so vast and so recently developed a science as the evolution of living tissues, there must necessarily be ample room for divergence of opinions on many points still obscure, and on not a few considered by many as established facts.

One question, upon which I have before expressed my opinion, refers to the nature of the germ cells. The almost generally accepted theory of Weismann that "the germ cells are the direct descendants of the germs of the original primitive metazoa" is asserted by the author of the Bradshaw Lecture and this is, I must say, in perfect accordance with the orthodox doctrine of Weismann. This means that the primitive germ cells of the original metazoa have been reproducing themselves by division and subdivision, without any differentiation whatever, except such infinitesimal modification produced by the ever changing conditions created by the influence of the somatic cells surrounding them. This influence is granted by the lecturer, although perhaps not so plainly by Weismann. The Weismann division of the organism into germ cells and somatic cells implies (with the corollary that the germ cells are immortal, because every germ cell is a division or a subdivision of previous germ cells, back as far as the original primitive germ cell or cells) that every germ cell in existence to-day or which will be reproduced from these in the future, must necessarily contain an organic portion, however infinitesimal, of the original primitive germ cell or cells.

In my own opinion, there is no ground for entertaining such a view, there is no ground for considering the germ cells as direct descendants of the germ cells of the parent organism of any individual, any more than the liver cells or the brain cells or the intestinal cells. In other words, the germ cells are differentiated cells just the same as the liver cells, the brain cells, or the intestinal cells.

That principle of direct descentance has been propounded by Weismann and his school under stress of theory, to harmonize with and support the other parts of his general theory.

But let us look at the facts: The germ cells of parent organisms, namely, the spermatozoon and the ovule, unite in the act of fecundation to form the conjugate cell which is to develop into the new being. The conjugate cell, otherwise the fecundated ovum, is nothing like the ovules in the virgin ovary; whatever the origin of those ovules, they are not produced in the same way as a conjugate cell; they are, therefore, essentially different; the spermatozoa also are essentially different, just as much so as, in the inorganic world, hydrochloric acid differs from hydrogen and chlorine respectively. They each and all have different properties. Now let us observe what takes place in the fecundated ovum which, I think, I have proved, is not a germ cell but a conjugate cell formed of two germ cells. It divides and subdivides until it forms what is called the mulberry mass, and what is that mulberry mass? It is a metazoic group of embryonic cells. Are they germ cells? Not at all. Not one of them can perform the function of a spermatozoon or of an ovule, and it is only later on in the process of ontogenesis that the germ cells make their appearance in the new metazoon, and by the same process of differentiation as the other cells of the different organs of the body. The germ cells are, therefore, differentiated cells and are not immortal as some disciples of Weismann would have it; but, like other differentiated cells, of a distinctly mortal nature. There would be as much reason, or as little reason, to divide the cells of the body into somatic cells and blood cells, meaning the corpuscles of the blood. The cell division of Weismann is no more warranted by the facts than the example here suggested.

P. Z. HEBERT, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Wassermann Reaction. Its Technique and Practical Application in the Diagnosis of Syphilis. By JOHN W. MARCHILDON, B. S., M. D., Assistant Professor of Bacteriology, St. Louis University Medical School. Eleven Illustrations and Colored Frontispiece. St. Louis: C. V. Mosby Company, 1912. Pp. xiv-103. (Price, \$1.50.)

This handy volume contains an unusually lucid and detailed description of the method of making a Wassermann test, an average of about five pages each being allotted to the description of the preparation of the amboceptor, complement, red blood corpuscles, patient's serum, and antigen. Numerous illustrations depict the laboratory apparatus required, while charts are freely used to show the method of control. The author then passes to the practical application of the reaction in the different types of syphilis. He is not too specific in his clinical conclusions, although he ventures to state that the reaction is positive in all untreated tabetics and paretics! This is going a little too far. The entire absence of bibliography, however, conceals the source from which he obtained such figures. The book closes with a few paragraphs on the Wassermann reaction in other diseases and a chapter on the influence of treatment on the reaction.

Elementary Bacteriology and Protozoology. The Microbiological Causes of the Infectious Diseases. By HERBERT FOX, M. D., Director of the William Pepper Laboratory, of Clinical Medicine in the University of Pennsylvania, Pathologist to the Zoological Society of Phil-

adelphia, etc. Illustrated with 67 Engravings and 5 Colored Plates. Philadelphia and New York: Lea & Febiger, 1912. Pp. vi-237.

Doctor Fox within some 221 pages has succeeded very well in preparing a book on bacteriology, a rather difficult task when one realizes how voluminous the material on this subject is. The book, as the title indicates, is elementary in character, being intended primarily for nurses. To that purpose it seems quite admirably suited. The general features of bacteriology as relating to medicine are briefly stated and would suffice for one not going deeply into the matter. Protozoology is dismissed rather shortly, but that chapter probably contains as much as is necessary. As might be expected, the mechanical part of the volume is well done and the book itself can be recommended as a manual for nurses.

Kohlenhydratkuren bei Diabetes. Von Prof. Dr. GEORG ROSENFELD, in Breslau. Halle a.S.: Carl Marhold, 1912. Pp. 64.

This monograph deals with the carbohydrate treatment of diabetes from two points of view; one concerning those treatments in which a carbohydrate is added because the substance is of value to the patient, the second form of treatment being that in which various carbohydrates, although not very well borne, are given in certain form, either on account of their influence upon oxidation or because they influence metabolism favorably. The various types of carbohydrates are briefly reviewed, and the article concludes with a few lines concerning the indications for carbohydrate treatment. The greater part of the publication consists of tables giving the results of various feeding experiments.

Life and Letters of Dr. William Beaumont. Including Hitherto Unpublished Data Concerning the Case of Alexis St. Martin. By JESSE S. MYER, A. B., M. D., Associate in Medicine, Washington University, St. Louis. With an Introduction by Sir WILLIAM OSLER, Bart., M. D., F. R. S., Regius Professor of Medicine in Oxford University, England. With Fifty-eight Illustrations. St. Louis: C. V. Mosby Company, 1912. Pp. xxv-317.

Whenever the physiology of digestion comes up for discussion one must always call to mind the foundation that was laid nearly a hundred years ago by an army surgeon, one William Beaumont. In June, 1822, the accidental discharge of a shotgun tore a hole in the left upper abdomen of a young French-Canadian, Alexis St. Martin. Doctor Beaumont was called upon to take charge. At first he did not realize the wonderful opportunity that lay before him but he soon appreciated its value and applied himself to unravelling the mysterious problems of digestion. The story of his achievements is indeed thrilling and should be a stimulus to all. Doctor Meyer has done all America a service by his painstaking care in assembling so much bearing upon the person and the work of this pioneer, who by his accurate and methodical traits started correctly the study of gastric digestion.

Enzymes. By OTTO COHNHEIM, a.o. Professor of Physiology, Heidelberg. Six Lectures Delivered under the Herter Lectureship Foundation at the University and Bellevue Hospital Medical College. First Edition. First Thousand. New York: John Wiley & Sons; London: Chapman & Hall, 1912. Pp. viii-173. (Price, \$1.50.)

The appearance in book form of Professor Cohnheim's lectures at Bellevue during his visit here two years ago, will be greatly appreciated by the profession at large. Professor Cohnheim presents the great merit, so common among German teachers, of making an abstruse subject clear even to a benighted reader. In the present case all that is required is close attention to the text, and the reader will acquire more knowledge of the far reaching question of enzymes than he could from far more pretentious works. In fact, the whole subject of enzymology is reviewed, the methods for the preparation, purification, and analysis of the eighteen enzymes studied being given. On the whole, it would be difficult to imagine a more satisfactory book notwithstanding its diminutive size.

The Kallikak Family. A Study in the Heredity of Feeble Mindedness. By HENRY HERBERT GODDARD, Ph. D., Di-

rector of the Research Laboratory of the Training School at Vineland, N. J., for Feeble Minded Girls and Boys. New York: The Macmillan Company, 1912. Pp. xv-121. (Price, \$1.50.)

In *The Kallikak Family* we read the story of a feeble minded girl, a moron or high grade imbecile, who has been under close observation and training for several years; particularly the story of her family which has been traced by means of "field workers" through six generations. In Revolutionary times a normal young man became the father of an illegitimate child through a feeble minded girl. Later he married a normal girl and established a family. Posterity to the number of 480 individuals has been traced to the illegitimate, and 496 to the legitimate union, and the results are striking. Although all of the problems of heredity are not yet settled, and the applicability of Mendel's law to humanity remains still to be proved, one can scarcely read this little book and study its charts without being convinced of the important influence of "blood" in the breeding of intellectual as well as feeble minded human stock.

Pharmacology. Action and Uses of Drugs. By MAURICE VEJUX TYRDE, Ex-Instructor of Pharmacology in the Medical School of Harvard University. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. ix-288. (Price, \$1.50.)

Until recently there has been a dearth of good books of moderate size on this subject for the student. The contents of the present little volume are practically limited to the knowledge required by him as a preliminary to the study of therapeutics and answer well the purpose intended by the author. In the second edition various new facts in pharmacology have been introduced. Such recently developed subjects as endotracheal anesthesia, the organic arsenicals, hexamethylenamine, etc., are all found duly mentioned. The pharmacology and uses of pituitary extract, however, appear to have been neglected, but one short sentence being devoted to this drug. On page 2 occurs the odd expression "therapia sterilisata magna." It would seem justifiable to hope that the introduction of Ehrlich's remedy has not, as this expression would suggest, initiated an era of "sterilized therapeutics," but rather one of increased efficiency in treatment through sterilization.

Die experimentelle Pharmakologie als Grundlage der Arzneibehandlung. Ein Lehrbuch für Studierende und Aerzte. Von Dr. HANS H. MEYER, Wien, und Dr. R. GOTTLIEB, Heidelberg, Professoren der Pharmakologie. Zweite, neubearbeitete Auflage. Mit 64 z. t. farbigen Textabbildungen und 1 farbigen Tafel. Berlin und Wien: Urban & Schwarzenberg, 1911. (Through Reiman Company, New York.) Pp. xx-554. \$3.50.)

This work is the product of two of the world's foremost specialists in the subject of which it treats, and gives evidence, not only of their own extensive labors, but of a thorough assimilation of the literature of pharmacology, including the most recent. Numerous references are given throughout, yet so inconspicuously that they do not interfere with the clear sequence of the text, though imparting to it a degree of authority obtainable in no other way.

The book is almost unique among works on pharmacology in the arrangement of the subject matter, which is not divided into sections corresponding to the individual drugs discussed, but to the structures, or systems of structures, in the body on which they act. Thus there are successive chapters concerned with the pharmacology of the motor nerve endings, of the central nervous system, of the sensory nerve endings, of the vegetative nervous system, of the eye, of the digestive tract, of the organs of reproduction, of the circulation, etc., in each of which the drugs acting on the particular functions under consideration are brought together and compared. This plan obviously necessitates that the drugs which act on several structures or systems shall be given divided consideration in different portions of the book, atropine, for example, appearing in the sections on the eye, circulation, respiration, digestive tract, and sweat. This disadvantage is more than made up, however, by the accurate comparisons rendered possible in the discussion of drugs having similar but not identical effects upon a given organ. Especially valuable and timely is the section on the pharmacology of the autonomic portion of the nervous system, the impor-

tance of which has been so greatly emphasized of late. Due information is given as to the chemistry of drugs. Excellent diagrams, tracings, and tables illustrate a number of the agents discussed. Much new material has been added to the present edition, and all through the book the needs of the practitioner have been carefully considered.

Miscellany.

The Alleged Relations between Tone and Color.—We take the subjoined question from the *Ladies' Home Journal* for January, 1913, solely in order to reproduce the sane and matter of fact answer of the distinguished pianist, Josef Hofmann. Physicians should never overlook an opportunity to stamp out this sort of mystical nonsense, which is astonishingly current in many *soi disant* circles of culture.

Q. Is there any relation between sound and color? A friend of mine says that he "hears in color"; that the upper register of the piano ranges from red to white and the lower registers the darker shades: brown, green, blue, etc. Do you think there is anything in this?—D. K. L.

A. I do not. It seems to me that this hearing in colors is a piece of hyperesthetic imagination. I am told that there are certain mathematical relations between the vibrational numbers of the ground colors and the common chord when in absolute time; but since we do not paint with absolute colors and do not make music with absolutely pure tones these relations can, at best, have only a scientific and not an artistic bearing, especially as every one of the color hearers imagines some different color when hearing the same tone. The character as well as the quality of the instrument may also have an influence upon the color hearer, so as to cause him to see different colors if the same note is produced by a different instrument. However, if it makes any one happy to see green in his mind's eye at the sound of C—or red, or white—it would be cruel to rob him of this harmless pleasure.

Meetings of Local Medical Societies.

MONDAY, January 6th.—Clinical Society of the New York Nose, Throat, and Lung Hospital; German Medical Society of the City of New York; Brooklyn Hospital Club; Utica Medical Library Association; Niagara Falls Academy of Medicine; Roswell Park Medical Club, Buffalo; Hornell Medical and Surgical Association; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society.

TUESDAY, January 7th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine, New York; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Medical Association of Troy and Vicinity (annual); Long Island Medical Society; Amsterdam City Medical Society (annual); Lockport Academy of Medicine; Hudson County, N. J., Medical Association (Jersey City); Bridgeport, Conn., Medical Association.

WEDNESDAY, January 8th.—New York Pathological Society (anniversary); New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City Hospital, New York; Brooklyn Medical and Pharmaceutical Association; Alumni Association of the Norwegian Hospital, Brooklyn; Dunkirk and Fredonia Medical Society; Medical Society of the County of Richmond, N. Y.

THURSDAY, January 9th.—New York Academy of Medicine (Section in Pediatrics); West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester, N. Y.; Jenkins Medical Association, Yonkers; Auburn City Medical Society; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua (annual); Gloversville and Johnstown Med-

ical and Surgical Association; Physicians' Club of Middletown.

FRIDAY, January 10th.—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Society of Ex-Internes of the German Hospital in Brooklyn; Saratoga Springs Medical Society.

SATURDAY, January 11th.—Therapeutic Club, New York.

Births, Marriages, and Deaths.

Married.

Conlin—Thatcher.—In Setauket, N. Y., on Tuesday, December 10th, Dr. William Conlin and Miss Anne E. Thatcher. **Corn—Rosenberg.**—In New York, on Saturday, December 14th, Dr. David Corn, of Ridgefield Park, N. J., and Miss Fannie Rosenberger. **Kruse—Maxfield.**—In Fort Wayne, Ind., on Tuesday, December 17th, Dr. Edward H. Kruse and Miss Geneva Maxfield. **Mott—Tucker.**—In Rochester, N. H., on Wednesday, December 25th, Dr. George Ernest Mott, of Malden, Mass., and Miss Evelyn Sarah Tucker. **Spicer—Chatfield.**—In Waterbury, Conn., on Tuesday, December 17th, Dr. Edmund Spicer and Mrs. Minnie Tracy Chatfield. **Voegtlin—Kreuter.**—In Baltimore, on Saturday, December 21st, Dr. Carl Voegtlin and Miss Lillian Kreuter. **Warner—Francisco.**—In Cincinnati, Ohio, on Saturday, December 21st, Dr. Henry Jackson Warner, of the United States Public Health Service, and Miss Edmonia Gertrude Francisco.

Died.

Adnett.—In Cleveland, Ohio, on Thursday, December 19th, Dr. Hills Adnett. **Bailey.**—In Oneida, N. Y., on Monday, December 23d, Dr. Edward P. Bailey, aged fifty-seven years. **Bergen.**—In Washington, N. J., on Sunday, December 22d, Dr. Everitt James Bergen, aged sixty-six years. **Brower.**—In Kingston, N. Y., on Sunday, December 15th, Dr. Charles S. Brower, of Woodstock. **Collier.**—In Albany, N. Y., on Sunday, December 15th, Dr. Albert V. D. Collier, of Catskill, aged seventy-five years. **Dietrich.**—In Kansas City, Mo., on Monday, December 16th, Dr. Adolph Dietrich, aged fifty-three years. **Egan.**—In Chicago, on Sunday, December 22d, Dr. James J. Egan. **Ferrel.**—In St. Louis, Mo., on Thursday, December 19th, Dr. Henry E. Ferrel, aged thirty-seven years. **Giles.**—In Baltimore, on Saturday, December 21st, Dr. Alfred B. Giles, aged fifty years. **Gordon.**—In Newburgh, N. Y., on Sunday, December 15th, Dr. James Gordon, aged seventy-four years. **Green.**—In Dallas, Texas, on Tuesday, December 17th, Dr. John Alexander Green, of Blooming Grove. **Johnson.**—In Waverly, N. Y., on Monday, December 16th, Dr. William E. Johnson, aged seventy-five years. **Longan.**—In Houston, Texas, on Wednesday, December 18th, Dr. Herbert Augustine Longan, of Kansas City, Mo. **Miller.**—In Detroit, Mich., on Tuesday, December 17th, Dr. C. C. Miller, aged sixty-six years. **Morehouse.**—In Danville, Ill., on Friday, December 20th, Dr. Herbert W. Morehouse, aged sixty-nine years. **Oatman.**—In Brooklyn, N. Y., on Thursday, December 26th, Dr. Edward L. Oatman, aged fifty-nine years. **Porter.**—In Butler, Mo., on Monday, December 23d, Dr. H. P. Porter, aged seventy-three years. **Reoch.**—In Phenix, R. I., on Sunday, December 15th, Dr. William Stewart Reoch, aged forty-three years. **Rogers.**—In Hartford, Wis., on Monday, December 16th, Dr. Ezra M. Rogers, aged eighty-one years. **Solatinow.**—In Passaic, N. J., on Wednesday, December 25th, Dr. Joseph Solatinow, aged sixty-four years. **Standing.**—In St. Louis, Mo., on Sunday, December 15th, Dr. William Standing, aged sixty-six years. **Stevenson.**—In Pittsburgh, Pa., on Thursday, December 19th, Dr. William Blaney Stevenson, aged twenty-four years. **Swartz.**—In Fort Wayne, Ind., on Tuesday, December 10th, Dr. Douglas A. Swartz, of South Whitley, aged fifty-five years. **Ward.**—In Anniston, Ala., on Thursday, December 12th, Dr. Lucius Cincinnati Ward, of Daviston. **Yeagley.**—In York, Pa., on Thursday, December 12th, Dr. John H. Yeagley, aged sixty-three years.

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Original Communications.

SPASM OF THE PYLORUS AND CONGENITAL PYLORIC STENOSIS.*

BY HENRY KOPLIK, M. D.,
New York.

In my first paper upon pylorus spasm and pylorus stenosis, I made an analysis of those cases in which the spasm of the pylorus with only a relative stenosis played a leading rôle, and those in which a distinct growth of congenital origin existed at the pylorus with symptoms of spasm as an accompanying symptom. Strange as it may seem, we cannot as yet say that all are agreed that such a condition as pure spasm without any anatomical change in the structure of the pylorus exists as a distinct uncomplicated entity. Pfandler maintained that all the cases with which this paper deals were those of pure spasm. He has since materially modified his views, dividing the cases of pure spasm of the pylorus from true congenital hypertrophy of the tissues of the pylorus. However this may be, I will not enter into any academic discussion of the opinions of other writers which have been considered in my first paper. Only this must be borne in mind, that Ibrahim lately reiterates his doubt as to the existence of a pure pyloric spasm in infancy, without any anatomical changes at the pylorus. Cautley has published cases of pure spasm of the pylorus and I have recently seen post mortem a case occurring in the surgical service of the Mount Sinai Hospital, which in every way seems to have been one of spasm of the pylorus simulating congenital hypertrophy. The case was, briefly, one in which an infant, six weeks of age, had symptoms of congenital hypertrophic stenosis of the pylorus. There had been in addition the symptoms of explosive vomiting, peristalsis, palpable tumor before operation, absolute constipation with no fecal matter in the passages for forty-eight hours. This case at operation (posterior gastroenterostomy) showed a tumor of the pylorus the size of the end phalanx of the index finger. At the post mortem examination it was possible to pass a No. 15 catheter through the lumen of the pylorus though the pylorus was still hard and tumefied to the same degree as at the operation. I cannot consider this case as one of stenosis of the type described in the literature, where only a filiform probe could be passed through the hypertrophic pylorus.

*Read before the December meeting of the County Medical Society of New York.

We have thus cases to my mind of spasm of the pylorus, which during life may or may not give a palpable tumor, and which at operation give a palpable tumor, and post mortem this tumor persists. It is even conceivable that microscopical examination of such a pylorus will show the tissues to be thickened. Whether this thickening is to be interpreted as hypertrophy or the result of contraction of muscular fibre, future investigation will show.

Pylorus spasm with relative stenosis of the lumen of the pylorus is, therefore, a distinct entity. Marked examples of the condition I have published in my first paper. It is not an impossible condition in infancy. We know that the infant stomach is exceedingly sensitive to changes in the composition and reaction of the food. It is rather far fetched to try to compare the conditions in infancy with those met in the adult. Spasm of the pylorus in infancy need not presuppose the existence of an ulcer or growth as we find it in the adult, as some writers insist. We know that vomiting in the infant can be set in motion by the least and most unaccountable circumstance, and that it may become persistent by a continuance of action of conditions such as food composition and reaction, and also constitutional excitability, which do not obtain in the adult. In pylorus spasm with a relative stenotic condition of the lumen of the pylorus, the vomiting may begin soon after birth, or be delayed two or three weeks or more. In some children there is a history of previous well being, the stools even having been normal, when some slight change took place in the feeding. Either an attempt was made to supplement the breast with a bottle feeding, or, as in one of my cases, the mother in pure jest allowed the child to nurse at another woman's breast. The vomiting dated from that time and persisted and increased in severity. The vomiting in cases of spasm of the pylorus is as "explosive" as in cases of hypertrophy, the constipation is marked, the inanition also is progressive. Peristalsis is present to a marked degree, and in the very marked cases, the pylorus can be felt when the stomach is in a condition of contraction as a small body the size of a white bean, or as large as the phalanx of the finger, and in the cases which I will bring forward, as new cases in this paper, could be felt to relax and then harden at the moment of contraction of the pyloric portion of the stomach. When the pylorus was soft it could be felt quite distinctly and when it hardened the pyloric end of the stomach was visible on the abdominal wall in the state of peristalsis, and vomiting occurred.

Thus in these cases there was "explosive" vomiting, stomach peristalsis, and a palpable pylorus. It

is in this latter point the various authors are not in accord as to their conclusions of the conditions present. With some the fact that any pylorus is palpable argues the presence of a thickening or hypertrophy (Ibrahim); with others this structure is simply that of a contracting muscular organ, just as one might feel the biceps more distinctly if it was contracted. I think the pylorus is a contractile organ, and when in a state of diastole it may be soft though palpable, like the rest of the intestine when contracted it may be felt. The fact that it is felt is no argument in favor of any hypertrophy of its structure. I think, therefore, that in cases of spasm of the pylorus or pyloric end of the stomach there may be a relative stenosis, which may either be complete or nearly so, a palpable tumor indicating the contracting pylorus. My classification of all of the cases of this affection is as follows:

1. Pure spasm of the pylorus and the pyloric end of the stomach without any palpable pylorus, with peristalsis and explosive vomiting, loss of weight, and consequent inanition. The constipation present may be only a relative constipation, that is, some fecal matter passes, or there may be several movements, green and fluid in twenty-four hours, or of a brownish color, or the constipation may be absolute and on forced movement of the bowels, little or no fecal matter passes.

2. Pyloric spasm with relative and actual stenosis, with slight or marked thickening or hypertrophy of the tissues of the pylorus. Such cases give vomiting of an explosive type, coming on soon after birth, and continuing for some time with a palpable pylorus, at first, or subsequent to the onset of symptoms. The pylorus can be felt to harden under the finger at the time of greatest peristalsis of the stomach, and to soften after vomiting has occurred. There is constipation, complete at first, which after some duration of the disease mitigates, and fecal particles may appear in the stools. There is marked progressive atrophy and inanition.

3. Congenital hypertrophy of the pylorus so called with stenosis. These cases, which are only relatively more marked in their symptomatology than the previous class, give exactly the same symptoms; there is the same spasm of the pylorus as an accompanying symptom, the pylorus can be felt just as in the previous class, the peristalsis is just the same, and the constipation is the same, only possibly more marked. In fact, clinically it is the same condition, only it may manifest itself in more aggravated forms than in the cases in which the hypertrophy and stenosis are not so marked. I think, therefore, they are practically the same set of cases as in Class 2. When operated the cases in Class 3 may show considerable enlargement and hardening of the pylorus than was evident before the operation. This has given rise to the presumption that they are a distinct entity apart from Class 2. This, I doubt,—I think both these sets of cases merge into each other and are pathologically the same, though clinically one seems a more aggravated condition than the other.

CASES.

CASE I. Congenital hypertrophy of the pylorus with stenosis (hypertrophic stenosis). H., male, six weeks of age. Mother had two healthy children. Weight at birth

nine pounds seven ounces. The infant had a convulsion after birth and was at first fed on the bottle, and then placed with a wet nurse. Normal in other respects at birth. Lost one pound the first week after birth, weighing eight pounds 6.5 ounces on the fourteenth day. He still weighed eight pounds 6.5 ounces (stationary weight) at the end of the third week, being still on artificial feeding, and weighing eight pounds eight ounces he was placed with a wet nurse. At the beginning of the second week he began to vomit, vomiting the whole or part of every feeding and more in quantity than he had nursed. There was complete constipation, no feces passing. He did not improve with a wet nurse, and when I saw him in his fifth week he weighed eight pounds. The milk of the wet nurse at this time contained seven per cent. of fat, and was scanty. At six weeks of age he weighed seven pounds seven ounces. He vomited from two to three ounces of every feeding, and had about four large vomiting spells in twenty-four hours, and in twenty-four hours ran down to seven pounds seven ounces in weight and had a most marantic appearance. Examination showed a most marked and gigantic peristalsis, not only at times of vomiting, but in intervals of nursing. The pylorus could be distinctly felt as a hard body the size of the last phalanx of the small finger. He cried as if in pain when vomiting occurred, and was constipated to an extreme degree. When enemata were given a dark brownish water returned; there was little or no fecal matter in the returned water. In spite of many changes of wet nurses and the feeding either direct or with pumped milk the child vomited every feeding from one to three ounces, and ran down steadily in weight as follows:

Birth, January 25th	9 lbs. 7 ozs.
Eighth day	8 lbs. 6½ ozs.
Fourteenth day	8 lbs. 12 ozs.
Third week	8 lbs. 8 ozs.
Fifth week	8 lbs. 3 ozs.
Sixth week	7 lbs. 7 ozs.
Eighth week	7 lbs.
Ninth week	7 lbs. 4 ozs.
Nine and a half weeks	7 lbs.
Tenth week	6 lbs. 14 ozs.
Ten and a half weeks	7 lbs.
Eleventh week	7 lbs. 2 ozs.

At this point the vomiting became rather less frequent, and there was an improvement: April 10th, seven pounds four ounces, May 17th, nine pounds four ounces. From this time on there was a steady improvement; that is, on the seventy-fifth day of life the child began to improve.

During all the illness the peristalsis was very marked, and even when improvement began there was no marked diminution of peristalsis and the pylorus was still palpable.

The first yellow fecal movement occurred in the eighth week when he vomited something like six ounces in twenty-four hours, and there was beginning improvement, although the weight was still six pounds fourteen ounces to seven pounds. At this time he nursed eighteen ounces and vomited six ounces, compared to March 19th, when he took twelve ounces of nourishment and vomited five.

In May we find that the vomiting had ceased, the peristalsis was still present, but the pylorus was not noted.

Here is an undoubted case of spasm of the pylorus as evinced by the vomiting, and peristalsis and constipation. The pylorus could be felt, and, therefore, it could be asserted that it was enlarged and thickened; there was distinct stenosis, as shown by the constipation and the inanition. When improvement did set in, it was rapid and unmistakable. The child developed beautifully, and was normal in every way. Some would place this case in the group of undoubted cases of pyloric stenosis with hypertrophy, whereas others might insist that inasmuch as recovery took place, it was one of spasm of the pylorus with slight hypertrophy; but it is the counterpart of a case published by Ibrahim, in which he felt a small tumor early in the case, but which ended fatally later of intercurrent disease. There was a hypertrophic condition of the pylorus, though it had not given rise to any symptoms for

months. In fact, in my case the consultants among the foremost pediatricists were agreed as to the case being one of congenital hypertrophic stenosis of the pylorus accompanied by spasm, with a fair prospect of reaching the operative table.

The following case I consider one of pure spasm of the pylorus and pyloric end of the stomach with a possible thickening of the tissues about the valve.

CASE II. L. H., male, aged one month, January 20th; first child. Mother had no miscarriages, and the parental history was negative. The labor was normal. Weight at birth problematic, but was a well developed baby. The baby was put on the mother's breast and did well until eight days after birth when he began to vomit. He first vomited after each nursing to some extent, and then began to vomit all of each nursing. The vomiting was profuse and large in quantity. Under treatment the vomiting improved, but then there was a relapse when the baby became quite ill. The bowel movements after birth were yellow, then became green and fluid; the child was constipated finally and only moved on enema. At the first visit baby weighed eight pounds six ounces, there were some yellow feces in the rectum. The baby cried a good deal. The mother's milk contained three per cent. of fat. The pylorus could be felt, as will be described, and there was marked peristalsis. Weight, January 27th, eight pounds three ounces. The baby had movements which contained very little fecal matter, yellow or greenish. Nursed at the breast every two hours and vomited large amounts twice daily. Two and one half hours after nursing the baby had half an ounce of milk in the stomach. The pylorus could be felt as a hard body the size of a white bean, which hardened and softened under the finger when the stomach was full,—it could be felt when the stomach was empty.

February 15th, weight seven pounds twelve ounces. The abdomen showed marked peristalsis, and the pylorus could be felt as above described. Vomited on the average of twice daily. Had two yellow movements daily, no peristalsis when the stomach was empty, looked thin but bright.

February 24th, weight seven pounds five ounces. Looked bright, vomited two or three times a day after nursing at the breast 2.5 ounces, peristalsis seen and the pylorus was felt.

March 10th, weight seven pounds 3.5 ounces. Peristalsis still present and the pylorus felt; had a bronchitis. Still vomited; now had good movements from the bowel.

March 17th, baby improving, no vomiting.

April 7th, still vomited once or twice in twenty-four hours.

May 4th, ten pounds three ounces.

June 16th, thirteen pounds five ounces. Looked well; there was no evident peristalsis, and the pylorus could not be felt.

From this time on the improvement was rapid, and the patient at eleven months weighed eighteen pounds five ounces; at sixteen months 23.5 pounds, and was on a full diet of milk, cereals, egg, beef juice.

This case is evidently one of spasm of the pylorus, brought about by the mother allowing another woman, her sister, to nurse the baby only once,—the illness dated from this time on. The peristalsis was very marked and the pyloric valve could be distinctly felt to harden and soften under the fingers. There were movements at first indicating starvation (green) and later fecal matter appeared. The constipation was marked, and the baby went into a state of inanition from which it gradually recovered. An operation was advised before the baby reached me, but was rejected by the parents.

The following case is certainly one of spasm of the pylorus with hypertrophy of the pylorus. Under observation the baby ran down to a minimum weight, and was in a state of inanition when operation was peremptorily advised, but the baby recovered without surgical interference.

CASE III. J. M., aged one month, November 15th. First baby. Father and mother well. It weighed five pounds (?) at birth, nursed at the breast until two days before the visit to me. He began to vomit from birth, and two days before I saw him, the vomiting caused the mother to take him from the breast and put him on the bottle and then return to the breast. Before he began to vomit badly, that is, two days before his visit to me, his movements were yellow.

November 15th, weight six pounds eight ounces. The mother has abundant milk with seven per cent fat. There was distinct peristalsis but no pyloric tumor; after nursing in the office, vomited four ounces.

November 18th, six pounds two ounces, losing ground.

November 21st, six pounds, vomited after every feeding, peristalsis and obstinate constipation.

December 1st, five pounds twelve ounces, still vomiting.

December 4th, five pounds twelve ounces.

December 10th, five pounds eight ounces. Infant looked well. Vomited only twice in last twenty-four hours. Peristalsis still apparent, though not so marked; had two fecal movements in last twenty-four hours.

December 17th, five pounds five ounces.

December 25th, five pounds two ounces. Vomiting less, but looked about the same; had two greenish movements in twenty-four hours.

December 31st, five pounds four ounces. Retained seven feedings, rejected three. The movement by enema seemed to contain some milk curds. No peristalsis when the stomach was empty, but evident after nursing.

January 7th, weight five pounds 5.25 ounces. Peristalsis still present, especially after nursing.

January 19th, five pounds 4.25 ounces. Peristalsis.

January 25th, five pounds six ounces; two or three greenish movements daily. After nursing not only was peristalsis evident, but the pylorus could be felt, about the size of a small hazel nut, to harden and soften, as if the valve opened.

February 3rd, five pounds 8.75 ounces; aged three months and twenty days, peristalsis still marked, but valve could not be felt.

February 10th, five pounds 11.5 ounces. Improved in looks; had two or three yellow movements daily. Peristalsis evident, not so marked, but pylorus could be distinctly felt to soften and harden,—not as large as formerly.

February 24th, Pylorus still could be felt,—not so large and hard. Peristalsis still evident. Averaged three large vomiting spells a day.

March 26th, six pounds 6.5 ounces, put in hospital and then discharged after five weeks, six pounds ten ounces.

April 21st, six pounds twelve ounces, six months old. Had mild form of peristalsis; could feel the soft pylorus, tubelike, not hard.

June 10th, eight months old, weight eight pounds. Vomited twice in twenty-four hours. Peristalsis marked, and the pylorus could be felt to soften and harden under the finger.

July 24th, pylorus still palpable—softened and hardened, in full state of stomach; size of phalanx of middle finger, hard as bean in hardened state. Peristalsis still marked in full state of the stomach, though the patient was improving. Had contracted pertussis.

August 17th, weight eleven pounds 5.5 ounces, ten months old, vomited once or twice in twenty-four hours, but no peristalsis, no pylorus palpable.

November 11th, fifteen months old, weight twenty pounds.

July 16th, twenty-one months old, weight 23.5 pounds.

This case is one of undoubted spasm of the pylorus, with relative stenosis and a palpable pyloric tumor. The vomiting was "explosive," the stools those of inanition. Even long into the period of improvement the peristalsis persisted and the pylorus was palpable. Only after the illness became critical could the pylorus be felt, and then it was felt in a state of spasm and relaxation. When the patient reached a state of extreme inanition it was seen by a noted pediatricist. Operation was advised urgently, but rejected. After the patient had suf-

ferred three months, improvement, at first gradual, set in, and then was progressive.

In this case the pyloric tumor was felt fully two months and a half after the first visit, though it was sought for before this, and this lends some color to the view that a spasm of long duration may give rise to a tumor in the form of a hard contracted pylorus apparently thickened. It is impossible to furnish any proof of these things, but the fact remains that the pylorus in those cases which end in recovery, as this one did, feel just the same as those cases which come to operation. This case resembles very closely the case operated in reported in my first paper, and also Case XV in my first paper, with the reservation that the case now being discussed ran down to a minimal weight. Case XV was admitted by a well known surgeon to be an operative case, but the parents rejected the operation on account of the great risk involved.

CASE IV. F. H., male, five weeks of age. First baby. Parental history negative. Birth normal, breast fed from birth. The baby began to vomit two weeks after birth. At first vomited six or seven times daily as much as he nursed. The vomited matter came out with a gush. The baby vomited immediately after nursing, and the day before vomited twice as much as it nursed. Bowels, green, hard, dry, and constipated.

June 30th, weight seven pounds. The general condition was good, child got blue at times. Examination of all organs negative except on the abdomen, the stomach was seen in marked peristalsis. The pylorus could be felt as large as a white bean relax and harden at the moment of greatest peristalsis and vomiting. A movement obtained, dark brown, seemed fecal.

July 14th, six pounds fourteen ounces. There was peristalsis and the pylorus could be felt to harden and soften under the finger, under the liver as large as a large bean. The hardening and softening of the pylorus was quite distinct in this case. When the pylorus contracted the peristalsis became quite marked. Baby looked well. Movement examined contained feces.

July 26th. In interval the attacks of vomiting varied from one to three large vomiting spells a day. In this visit the note was made that the pylorus could be felt as large as the phalanx of the ring finger. At this time the baby was passing yellow fecal movements, about a thimbleful a day.

August 2nd, baby improving; vomited once or twice a day.

August 11th, six pounds 4.5 ounces. There was a large vomiting spell twice in twenty-four hours. Skin dark, dirty color. Was an alternate breast and bottle feeding. The pylorus still distinctly felt, and peristalsis quite marked.

CASE V.—(This case is similar to those just recorded. The case escaped from observation.) M. I., male, aged ten weeks. The third child, breast fed. Parental history negative. Vomiting for past five weeks. Had vomited constantly and vomited all and more at times than it nursed. Vomited also mucus. Stools green fluid; at first yellow.

Weight seven pounds 1.5 ounce, was emaciated, though not in bad condition. Peristalsis marked; the pylorus could be felt as a tumor which hardened and softened. Contents of stomach recovered with much mucus. Mother's milk contained 2.5 per cent. of fat. This baby did badly, and in one week lost six ounces. It was the case of another physician and was not seen after this.

This and the preceding case are exactly similar, and are cases of spasm of the pylorus with relative stenosis and palpable pyloric tumor.

I will now simply record a number of cases of pyloric spasm in which at some time there was in addition to the peristalsis a palpable pyloric tumor.

CASE VI. J. M., male, eight weeks old; third child; normal delivery, large child at birth, said to weigh ten pounds (?). When two weeks old began to vomit; at

this time the baby vomited after each nursing and the movements seemed normal. As the vomiting persisted the stools became green and finally constipated. The baby was kept on the breast; the mother tried no foods, but kept the baby on the breast.

Weight seven pounds ten ounces. Peristalsis present. The pylorus could be distinctly felt to soften and harden under the finger. This baby lost in weight 5.5 ounces in one week, and then passed from observation.

CASE VII (Patient of Dr. G.). J. D., male, six weeks of age, first child; forceps delivery, weight nine pounds at birth, parental history negative. On the breast. Was well until five weeks of age when, after having two or three regular movements a day, he began to vomit in an explosive form. All that was nursed was vomited. Constipation set in; no movement except with enema, then hard brown pieces were passed. There was a steady loss in weight.

Weight eight pounds ten ounces. Mother's milk 2.5 per cent. fat. There was very marked peristalsis. Pylorus could be indistinctly felt, softening and contracting. There was typical pyloric explosive vomiting in the office; pain and crying on peristalsis.

CASE VIII. Female, eight weeks old, first child. Parental history negative; breast fed. This baby began to vomit soon after birth, but still vomited large amounts four times daily. At first movements were loose, now had constipation. Had laryngismus.

Weight four pounds ten ounces. Condition was very poor, atrophic.

October 18th, vomited four times a day profusely. Constipated. There was a distinct peristalsis and the pylorus could be palpated. The vomiting was characteristically pyloric.

December 15th, seen by me four times in addition to this visit. It remained atrophic and was finally put with a good wet nurse. The vomiting continued unabated, though the baby had yellow movements. Even at this late day, there was marked peristalsis. The baby weighed five pounds eleven ounces, and from this time it improved so that at seven months it weighed fifteen pounds two ounces.

This case was an extremely marked one of pyloric spasm and relative stenosis, and made, after many vicissitudes and changes of wet nurses a brilliant recovery.

CASE IX. This case was abandoned and the mother was so ignorant as to be unable to give definite data as to the child's condition. I. A., male, aged three months, weight seven pounds, in poor atrophic condition. Sent to the hospital. While in the hospital classical symptoms of pyloric spasm and relative stenosis developed of a milder type. There was explosive vomiting when the baby fed over 2.5 ounces, marked peristalsis, and a pyloric tumor which could be felt to harden and soften under the finger tips. This baby had two or three greenish movements a day. It improved in the hospital and with a wet nurse, and finally was discharged as well, weighing eight pounds four ounces, an increase of two pounds in two months.

To contrast with the foregoing, there are extremely mild cases of what appear to be to be cases of simple spasm, in which the peristalsis is marked, but there is no palpable pylorus, and finally, still milder cases of spasm of the pyloric end of the stomach in which neither peristalsis nor pylorus can always be satisfactorily established. These latter cases are those which are the border line cases of infants suffering from flatulent or habitual vomiting, and which will not be considered lest the main points of this paper be lost in their discussion.

The following case would illustrate what would be diagnosticated as a case of pure spasm of the pylorus without any hypertrophy of the tissues of the valve.

CASE X. Female, ten weeks old, second child, normal delivery, weighed eight pounds at birth, breast fed. When five weeks old the baby began to vomit and vomited

after each nursing, vomiting badly on an average of five times daily. The baby was constipated, and was fed in addition to the breast with one bottle daily when four weeks old. The patient retained the bottle better than the breast. The baby lost steadily. Weight at first visit ten pounds four ounces, good general condition; physical examination of the various organs negative. The mother had good breasts, the milk containing 3.3 per cent. of fat.

February 6th, there was peristalsis visible on the abdomen, but no pylorus could be felt.

February 13th, nine pounds thirteen ounces in weight. Vomiting, but movements were larger than they had been.

February 20th, ten pounds.

March 6th, nine pounds thirteen ounces. Still vomiting. Three months old. Took off the breast.

April 2nd, ten and a half pounds. Stopped vomiting.

May 17th, thirteen pounds eleven ounces. Still vomited, but had three movements a day.

The foregoing, to my mind, is a case of pure spasm of the pylorus and pyloric end of the stomach of mild form, and one which would not have been considered by me for either operation or any treatment other than careful feeding. The mother's breast milk in this case seemed to act as an incentive to spasm and vomiting, and the baby thrived as soon as it was taken from the breast, but still continued to vomit on the bottle.

PATHOGENY.

The pathogeny of this affection has been ably discussed by Thomson, Ibrahim, and Pfaundler. I think this affection seems to be a distinctly neurotic one and in some cases actually hereditary. I know two of my cases occurred in sisters, both of whose husbands (brothers) were neurotic and confirmed dyspeptics. One of these sisters had two babies that suffered from pyloric spasm and stenosis and all three children recovered. One case I published in my first paper; the baby of the other sister I published in this paper as Case III. One infant was at the breast from birth, and the vomiting which set in in the fifth week seemed to have been precipitated by the exhibition of barley gruel. The other sister's infant was artificially fed from the start, so the mode of feeding *per se* seems to have little to do with starting the symptoms.

I have also noted in some of these infants an increased excitability to anodal irritation. There is a definite period over which the symptoms are the most aggravated, and that occurs, as in the first case in this paper, in the second month of life. The symptoms begin to subside after the third month if the baby is tided over this period. This is striking and should aid those whose anxiety might precipitate an operation. The condition of spasm seems to relax after the third month of life. The breast milk of some mothers is a direct inciting element in the case, and in one case which had improved after the mother's breast was discontinued (Case II), was aggravated upon the mother surreptitiously giving the breast milk to her infant.

Peristalsis continues long after vomiting has ceased to be a symptom, and the pylorus can also be felt to soften and harden under the finger long after the infant has gained the mastery over its condition.

The fact that the pylorus can be felt to harden and soften is no proof that the case is one of pure spasm without hypertrophy; on the contrary, operation may reveal such a pylorus much hypertrophied, and, vice versa, a much hypertrophied pylorus may not be felt before operation. The fact that the pylorus

can be felt to harden is presumptive evidence of spasm superadded to the other conditions in the case.

This would seem the place to discuss the question as to whether hypertrophy and spasm can be separated in cases of Class II and III. I have never seen a case in which apparent hypertrophy with stenosis of the pyloric lumen existed, as shown by palpable tumor, in which there was no spasm. The spasm affects, not only the pyloric valve, but the whole adjacent part of the stomach. This is distinctly proved by the fact that after operation in these cases the vomiting may persist for days, in spite of the fact that a new opening has been made in the wall of the stomach, and some food passes through as evinced by the fecal movements. Thus in these cases the pyloric valve has been sidetracked, and still vomiting occurs and involves, not only the pyloric end of the stomach, but may extend to the cardiac portion of the stomach.

PROGNOSIS.

Recovery depends on the resistance of the patient, the skill with which the case is managed, and the power of the sufferers to overcome the baneful effects of inanition. The question of prognosis is also bound up, not only with the course of treatment, but with the amount of spasm and stenosis present. Some infants with marked spasm of the pylorus do not lose much weight, but remain stationary and there are fecal movements; these cases are exceedingly mild. Cases of pure spasm need not be seriously treated here. Speaking only of complete stenosis of the pylorus with slight or marked hypertrophy of the tissues of the pylorus, some children will bear this condition well; they run down quite slowly in weight after the first great drop in weight, and seem in good strength, though marantic. Other infants, with symptoms and conditions apparently similar, run down rapidly in weight, pass into an alarming state of inanition in a short time, and threaten to or even do pass away. It is difficult, not only to foretell the outcome of such cases, but also for the physician to stand by and continue on purely medical lines in his treatment. In spite of this, though I have seen infants die, most of the seriously ill infants came through under medical management, so much so that I have gradually come to regard recovery as not incompatible with a marked congenital hypertrophy and stenosis, just as others have considered this to be impossible.

TREATMENT.

The treatment of spasm of the pylorus with relative stenosis; that is, the cases which I have placed in Class I, must remain a purely medical one. Vomiting, which may be violent, peristalsis, loss of or stationary weight, are no indication for surgical interference, however alarming the symptoms may appear at times. I think such cases should never be submitted to the surgeon. It is only the cases in Class II and III, those in which there is not only spasm and complete or relative stenosis, in which there is a palpable tumor, peristalsis, vomiting, and absolute constipation, that a question may fairly arise as to the surgical end of the treatment. I think a study of all of my cases now numbering

twenty-five published, and some recent cases not published, that congenital pyloric stenosis with spasm and hypertrophy of the tissues of the pylorus, can in the vast majority of cases be brought through without surgical interference. I think the cases which must come under the knife must be exceedingly rare. I know large numbers of successfully operated cases have been published, but they are open to the following criticism: They have been for the most part infants operated upon early and in tolerably strong condition; many of the patients were little below the weight of infants who simply do not thrive on their food and have no symptoms of pyloric spasm or hypertrophy. The fatal cases are not always published. Some surgeons publish sets of cases and never follow up with additional cases operated in. The mortality of these cases with some operators is fully fifty per cent. Many cases published by surgeons, it would seem, though this I admit is difficult to judge correctly, might have come through without operation; and finally, it appears to me a very difficult matter to submit these cases early in the symptoms to the knife as the surgeon insists. I, therefore, think that inasmuch as fully ninety per cent. of my *apparently* hopeless cases have come through without operation, the risk involved in the operative interference is so great at present as not to encourage us to place any of these cases in the hands of the surgeon. There might arise cases in which from the first moment of life, a large palpable tumor was felt at the pylorus, the constipation being complete and absolute, and the loss of weight critical; that is, a loss of three or four pounds in a few days, with threatening inanition, would force one to propose operation, but such cases are exceedingly rare, and must not cloud my main contention that I have practically returned to the first views of Heubner and Pfaundler, and do not submit the vast majority of the cases of hypertrophic stenosis of the pylorus to operation. I regard the prognosis as more favorable under a nonsurgical treatment.

THE MEDICAL MANAGEMENT.

I will not go into any old data as to the medical management of these cases, but will only take up some new ideas which have lately been placed before us for consideration. Einhorn has proposed to pass through the stenotic pylorus a bucket and on the leading string of this bucket a dilator. This treatment of dilating the stenosis is quite attractive if it could be accomplished in the extreme cases. This is absolutely impossible in some cases, as has been argued; a filiform probe cannot be passed, much less a small bucket or guide. Any pylorus which will admit the passage of a bucket guide and dilator will end favorably without this procedure. A study of the successful case published as treated in this manner must convince one that this case or other cases do not come under the class of case discussed in this paper.

The second procedure proposed has been the passage of a duodenal catheter, and either leaving it in the lumen of the pylorus for a length of time, or feeding the child through it while in the duodenum (Hess). I think this procedure of limited value also. In one of my cases of persistent vomiting, in

which there was a mild form of spasm of the pylorus, the duodenal catheter relieved apparently the vomiting for twenty-four hours, but it returned in increased intensity, and a good wet nurse replaced the catheter most successfully.

In marked hypertrophy and stenosis with spasm, I have seen the catheter fail to pass. We are thus reduced to the former methods, which include exceedingly patient study of the feeding, lavage at times, opium, and what is of greatest moment, persistence and attention to detail.

I will close with a reference to a direction which the feeding may take in the future. In a very suggestive series of studies by Cowie and Lyon on the acid control of the pylorus in infants, the mechanism of the opening and closure of the pylorus, as explained by Pavloff, in the adult, has been carefully worked out in infants. It appears to me that in feeding infants suffering with pyloric spasm and hypertrophic stenosis, more attention should in the future be given to the relative acidity of the stomach content than has been done in the past. In this way a relief of symptoms might be more readily attained.

30 EAST SIXTY-SECOND STREET.

AMEBIASIS AND THE RESULTS OF TESTS FOR THE DETERMINATION OF OCCULT BLOOD IN THE FECES.*

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In a previous paper (NEW YORK MEDICAL JOURNAL, March 23, 1912) one of us (R. C. R.) reported the findings in several hundred cases of ameba in the stools of apparently healthy individuals, and beside this, in a certain number of cases the guaiac test for occult blood was positive.

No further study of the cases at that time was made, but during the past several months we have had the opportunity, through the courtesy of Dr. J. Allen Jackson, of the Philadelphia Hospital for the Insane, of examining over 200 other cases of different forms of insanity and here record the results, both as to the presence of ameba and tests for occult blood.

The stools were obtained, as a rule, after calomel and magnesium sulphate had been given, as stools so obtained were the most suitable for examination. A number of specimens were semisolid or solid, yet were in most cases fit for examination. The time the patients were in the institution varied from one day to twenty-seven years, and the diseases included senile dementia, paresis, imbecility, dementia præcox, puerperal insanity, acute and chronic manias.

*Read before the Pathological Society of Philadelphia, October 24, 1912.

There were 150 examinations made of 137 males and 146 examinations on 141 females. In the males the number of instances of the ameba was 112. *Cercomonas* occurred in two cases and *cercomonas* with ameba in two. In the females, eighty-one cases harbored ameba; *cercomonas* occurred forty-four times and *cercomonas* with ameba thirty-one times. Among the males, thirty-six were in the institution under one year and were positive for ameba, while in eight who were inmates less than one year, no ameba was found. In sixty-six who were in the institution over one year, ameba was present, and in twelve who were inmates more than one year no parasites were found. Among females, twenty-nine had ameba who were in the institution under one year, and twenty-four were negative on being incarcerated less than one year. Ameba was present in fifty-two inmates over one year and absent in thirty-one over one year.

The method of examination was the same as in the other studies reported, simply taking a drop of the material, placing under a microscope, and examining under ordinary conditions, without a warm stage. The organism encountered corresponds to *Amaba coli*, as in no case examined was there a history of diarrhea or dysentery; the majority, if not all the patients, being subject to chronic constipation. While the parasites were found motile in quite a number of cases, yet encysted forms were most common. Apparently the parasites seemed to be more abundant during the warmer months than in the early spring; whether this really was the case or not is a matter of conjecture. In no case except one, was there a gross evidence in the stool of blood, and only in this case was there a suggestion of red cells being engulfed by ameba. A few stained preparations showed the peculiar picture of *Amaba coli*.

In a number of cases from other wards of the hospital sixty-nine examinations were made. These specimens were not obtained by a special purge. Forty-one gave no evidence of intestinal parasites; twelve showed ameba; seven showed *cercomonas*, and seven were not examined for parasites on account of the unsuitable condition of the specimen. In fifty-two other examinations of thirty patients, nineteen contained ameba and twenty-five showed no parasites; seven showed *cercomonas*. It will be seen that *cercomonas* was more prevalent in the females than in the males from the insane department, and here again it was noticed quite decidedly that these parasites were more common in the warm months than during the early spring.

These studies were interesting in showing the great prevalence of ameba, especially where no history of diarrhea or dysentery or abscess of the liver was obtainable, and also as to the occurrence and persistence of the reactions for occult blood. Three tests for occult blood were used in most cases; these were the turpentine and guaiac test, benzidine, and a modified Meyer's reagent. This latter is a solution of phenolphthalein in fifteen to 17.5 per cent. potassium hydrate which is boiled in distilled water with chemically pure powdered zinc (Merck) until colorless.¹ The other tests are well known and need no description here. Weber's

modification of Van Deen's test was also tried and was far superior to the common guaiac test and more reliable than benzidine.

Among the females, of 141 cases, sixty gave a positive reaction to Meyer's reagent; forty-seven had positive reaction of turpentine and guaiac, and fifty gave a positive reaction with benzidine. In this group of 141, only two cases of hemorrhoids were obtainable and in this group of the whole three tests thirty-seven per cent. were positive. Individually, Meyer's reagent was positive in 42.5 per cent., turpentine and guaiac in 33.3 per cent., benzidine 35.4 per cent. In the males, of 122 tests, seventy-seven were positive to Meyer's reagent, or 66.2 per cent., while of 137 tested with turpentine and guaiac reagent sixty-two gave positive reaction, or 45.2 per cent. Grouping both reactions 53.7 per cent. gave positive evidence of the tests for occult blood. In this group of cases three instances of hemorrhoids occurred. In the sixty-nine cases examined in ordinary routine examinations, forty-six were negative to the tests for occult blood; ten cases gave a positive reaction with animal parasites, and thirteen gave a positive reaction for blood with no parasites.

Reverting again to the insane cases; in the females, there were forty-one cases negative for occult blood but showed ameba; forty cases were positive to occult blood and ameba, and twenty-five were positive for blood and negative for ameba. Among the males, forty-six cases were negative for occult blood but showed ameba; sixty-six were positive for occult blood and ameba; eleven were negative to ameba and occult blood, and fourteen were positive for blood and negative for ameba.

A study of the hemoglobin was taken in over 100 cases by Dare's hemoglobinometer and the readings ran from forty-three to eighty-five per cent., while with the Tallquist scale, the readings were from fifty to ninety per cent. Of twenty cases studied as to the constancy of low hemoglobin and ameba, the presence of ameba and the occurrence of occult blood, fifteen gave positive findings for ameba, fifty per cent. positive for the tests for occult blood, and the hemoglobin estimate from forty-three to sixty-eight per cent. The red cells in this series varied from 3,050,000 to 5,500,000. In suspected cases, as for example, carcinoma or ulcers of the intestinal tract, thirty-three gave positive reactions with all three tests. Occasionally only two tests were positive and very rarely one test alone was positive. As to the positive findings, it should be recommended that no one test should be relied upon; at least two or three tests should be performed. It occasionally happens that the diet of the patients may play an important part in the end result. For example, benzidine and even guaiac have given the reaction where rice, watermelon, and potatoes have been eaten and where iron has been taken internally; whereas with Meyer's reagent no such reaction occurred. The following articles of food and chemicals were tested with the three reagents and where positive results were obtained with benzidine and guaiac or one of the two, no reaction occurred with Meyer's reagent. Grapes (both skin and pulp), watermelon, tomatoes, raisins, rice, milk, tea, coffee, prunes, potatoes, cream, starch, tincture of iodine, bismuth, potassium

¹Equal parts of the reagent and fluid feces are taken, shaken thoroughly, and a small amount of hydrogen peroxide is added. If positive a red color quickly appears, which may fade after a time.

iodide, salts of silver and lead, aspirin, sulphonal, sodium salicylate, potassium permanganate, tincture of chloride of iron, and solutions of indol. Prunes, rice, raisins, and watermelon were tested, naturally and when artificially digested. As to an excessive meat diet, this cannot be said to occur in the inmates of the institution. It might be mentioned, in passing, that nearly all stools showed the presence of a few partially digested muscle fibres, but none showed the gross appearance of blood.

Where the reaction is positive we believe that there has been or is a loss of blood from some portion of the respiratory or intestinal tract. It appears reasonable to suppose that in these insanities, autointoxication exists and in this way may bring about a lowered blood pressure or a lessened tonicity of the bloodvessels, causing these positive and constant reactions for occult blood. This view of autointoxication is, we believe, rather strengthened by the general prevalence of constipation among this class of patients. That there is an anemic condition prevailing is fully shown by the hemoglobin and the red blood cell count. It may appear to some that Meyer's reagent is oversensitive in its results, but the tests with other substances that gave a positive reaction with other reagents showed that this reagent only reacted to blood. (Additional experimentation with Meyer's reagent finally gave us two substances giving a reaction similar to that for occult blood—viz., sulphate of copper and essence of pepsin.)

There were no cases of epistaxis, no cases of cancer or ulcer, and no gross evidence of adenoids or an ulcerated condition of the gums. It appears to us that the test or tests for occult blood might be additionally interesting in cases of secondary anemias, apart from cancer or tuberculosis.

2330 NORTH THIRTEENTH STREET.

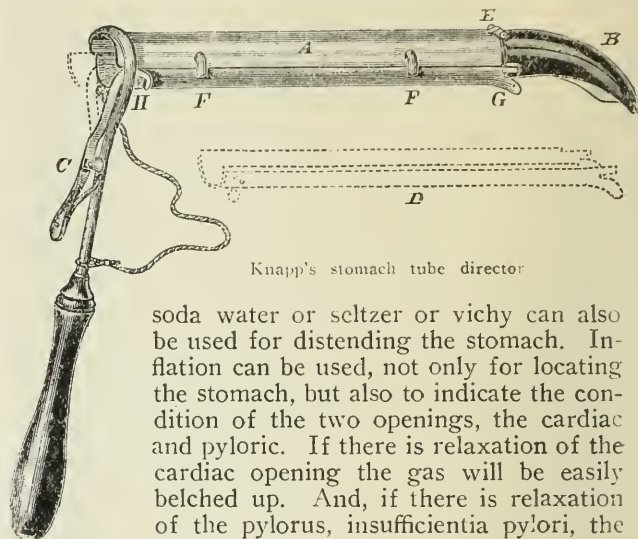
THE NEWER TEACHINGS OF THE DISEASES OF THE ALIMENTARY CANAL.*

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IV. INFLATION.

This is a very useful method to locate the stomach. There are two ways of inflating the stomach, either with air or with carbon dioxide. For the former a stomach tube is connected with a double rubber bulb. The stomach tube is then introduced and the ordinary air is pumped in until the stomach stands out prominently. This method is the best and should always be insisted on. But sometimes the patient objects to the stomach tube. In such case we inflate the stomach with carbon dioxide, generated by the coming together, in the stomach, of sodium bicarbonate and an acid. Usually, the patient is given to drink two solutions, one of tartaric acid and the other of bicarbonate of sodium. Half a teaspoonful of each, bicarbonate of sodium and of tartaric acid, are dissolved separately in separate glasses, using about half a glassful of water to each glass. The patient drinks first one

and immediately afterward the other glass. By the interaction in the stomach of the two chemicals, carbon dioxide is evolved which distends the stomach. If both gastric orifices are in a normal condition the gas distends the stomach, which then stands out prominently and can therefore be seen and felt and palpated and percussed. Ordinary



Knapp's stomach tube director

soda water or seltzer or vichy can also be used for distending the stomach. Inflation can be used, not only for locating the stomach, but also to indicate the condition of the two openings, the cardiac and pyloric. If there is relaxation of the cardiac opening the gas will be easily belched up. And, if there is relaxation of the pylorus, insufficiency pylori, the gas or the air may have very little or no effect at all and the stomach cannot be distended. Very frequently we find a condition where there is pyloric insufficiency and a stenotic condition of the duodenum. In this case one may be led to believe that there is a gastrectasy, that the stomach extends a good deal beyond the median line. The skilful diagnostician will rarely be misled. Besides, the test meal examination will show the presence of the insufficiency of the pylorus.

One of the easiest methods to locate the stomach is the cold water test, which I described in the *Medical News* for June 10, 1905. It consists in having the patient drink one or two glasses of ice water. Instead of plain water any other cold drink, or ice cream may be used. This method works best on an empty stomach. After the patient has drunk the water we wait for about four or five minutes and then we look for the cold area on the abdomen. The cold area locates the stomach. In applying this test care should be taken that the patient's abdomen be warm before he is given the cold draught, and therefore his abdomen should not be bared, or, if bared before, it must again be covered, and we must wait until the abdomen warms up again. If we examine too soon the cold may not yet have penetrated to the surface, and, if we wait too long, then the cold water will have been gradually warmed up in the stomach and the test will fail. I will cite here an interesting incident. In demonstrating this test to my class I was surprised to find the cold area on the right side below the umbilical line, and accordingly I concluded the stomach was there situated. The subsequent x ray examination showed a dislocation of the stomach to the right side. How easily can one demonstrate a gastropexy by this rather agreeable method; it is the method which is the most easily accessible to every practitioner.

*See also previous articles by Dr. M. I. Knapp, which appeared in the *JOURNAL* of July 27, August 17, September 21, and December 7, 1912.

Gastrodiaphany is rather a toy without any special merit; it is cumbersome and expensive, but is an excellent means to impose upon the patient. Some believe that a little *hocus pocus* is not inappropriate. It was discovered or invented by a scientific Frenchman, Milliot, in 1867, and caught the fancy of Einhorn, in 1889, since which time the poor Frenchman has not been permitted to get whatever credit he deserves. At best the *gastrodiaphane* can show the location of the stomach, provided it has been introduced properly, and it may also show a tumor, if the tumor is situated between the light and the observer. It cannot show any pathological condition which exists behind the lamp. The *gastrodiaphane* is essentially a small electric light carried into the stomach at the end of a stomach tube. The stomach must be filled with water before the light is turned on, and the more water is admitted into the stomach, the plainer is the picture. The room must be darkened. If it were possible to use the *gastrodiaphane* the first time the patient comes to us for a diagnosis, there might still be some excuse for transillumination of the stomach. But this cannot be done. The patient's stomach must first be used to instrumentation, which requires many visits of the patient to the physician's house; it means, that the patient's stomach must have become used to lavage before the *gastrodiaphane* can be employed. Where is the skill of the physician who by this time has not yet been able to diagnose a tumor of the anterior wall of the stomach without the *gastrodiaphane*? The methods mentioned before are much easier and far better for the purposes for which the *gastrodiaphane* has been introduced. Milliot used it on dogs, and there it best belongs.

Other ingenious methods, as sound palpation, intragastric whistle, etc., have been devised, but they are scarcely used.

Splashing sound. This means is also used for locating the stomach. This would be an excellent method, as it requires the introduction of neither instruments, nor water, nor any other object. But the trouble is that the splashing sound may come even from the very region of the stomach without it being produced in the stomach. I have recently (*Medical Record*, February 10, 1912) reported such a case, and since that time I have seen the same again. Yet we find that Einhorn reports gastropnoes on the mere strength of the splashing sound. In view of the fact, that the splashing sound can be obtained, under certain conditions, also from coils of the intestine and not at all from the stomach, one can easily understand, how it was possible for Einhorn to cure many cases of gastropnoes which he diagnosed by the splashing sound. Apparently, Einhorn is laboring under erroneous impressions, and what he diagnoses by splashing sound as gastropnoes, never is gastropnoes; gastropnoes cannot be cured by either medicines or even by Einhorn's duodenal alimentation. One can easily cure an appendicitis, or cancer, which never existed; so can one also cure a gastropnoes which never existed. We will speak of this later.

I have now observed several cases where the splashing sound was in the very region of the stomach, and further examination proved that the

splashing sound came from the jejunum, lying behind the stomach. The splashing sound is elicited by the presence in a hollow viscus, or in a part of a hollow viscus, of a mixture of gas and fluid. Striking the abdomen sharply with the end of our fingers gives that succussion sound. To make sure that the splashing sound comes from the stomach, we must attempt to aspirate the stomach. If we find that no fluid can be aspirated, then the splashing sound was not produced in the stomach. Again, if we have to introduce the tube, in order to verify that the succussion sound came from the stomach, why can we not, with the tube already in the stomach, inflate the stomach and be sure of our diagnosis? No one must ever make a diagnosis merely by the splashing sound without exposing himself to well merited contempt and ridicule. The splashing sound may, perhaps, be used along with other methods; but one using this method alone exposes himself to the risk of being charged with intentional insincerity.

Percussion. I will mention first the percussion of the esophagus over the spinous processes of the vertebral column. The height of the diaphragm also can in this way be ascertained. Of value is the esophageal percussion when we are dealing with a tumor of the esophagus, or with a constriction. Here also the lighter the percussion, the better the result; in strong percussion, slight pathological changes will escape discovery. By the very light percussion even slight thickenings or adhesions can be diagnosed. Percussion of the stomach has for its purpose to ascertain its dimension and the quality of its contents. The results obtained from percussing the empty stomach will differ from the results obtained by percussing over a stomach having contents. Percussion ought to be practised with the patient in the recumbent, and in the standing position, and the results will vary accordingly. If there is any chyme, this will change its level with the various positions of the stomach, and for that reason, percussion ought to be practised in more than one position of the patient. Percussion of the empty stomach may or may not give the desired information concerning the stomach itself. Percussion of the chyme filled stomach gives different notes of resonance, varying with the position of the patient. If the patient is in an easy, recumbent position, with the knees drawn up, the stomach being only partly filled, percussion of the anterior portion of the organ will give tympanitic resonance, while on the left side of the abdomen, corresponding to the fundus ventriculi, we elicit a dull note. This phenomenon is simply due to gravity, the chyme gravitating down to the lowest level of the fundus. If now the patient be put on his right side, this side will be dull and the fundal portion tympanitic.

Palpation. Next to inspection, this is the most difficult and the most important of all the physical methods of examination. Experience and training will make all perfect. The personal equation may, sometimes have some influence. Every one may become a genius in palpation if he tries it and perseveres in it. Most extreme gentleness must be learned, and the patients must not be shocked by the cold hands of the physician.

The usual position of the patient is the recum-

bent one. However, occasion may demand that the patient be turned either on his left side or on his right. I have recently (NEW YORK MEDICAL JOURNAL, November 25, 1911) described the inclined posture, the patient's position being head down, the body inclined about fifteen degrees. The patient should breathe normally. It is best not to suggest anything to the patient. Do not tell him to breathe normally or fast; say nothing to him, and the patient will continue to breathe in his usual, normal way. With the patient in the proper position, our attention must be directed to ourselves. Our hands must never be cold; cold hands applied to the bare abdomen of the patient will cause contraction of the abdominal muscles, which will very much interfere with palpation, perhaps make it impossible. If the patient is on a low couch we sit alongside of him. I practised this latter method for many years, as I was taught under Ewald, but I have discarded it now. In this position the examiner soon gets tired. Palpation for a length of time, as when one has an interesting case, which may take a long time for the palpation, or if one has many cases to examine, becomes quite a hardship to the examiner in this awkward position. I now examine my patients on the ordinary examining chair, which permits elevating the patient to the proper height, and also admits the patient being tilted in the inclined position, mentioned before. The patient should come up to the height of the elbow of the physician, the physician standing.

We now must be cognizant of the fact that we are to use a most delicate mechanism, our sense of touch. Therefore, we must not interfere in any way with the tactile corpuscles of our fingers, we must not interfere with their nutrition, with their circulation. For that reason the palpating hand must assume the easiest position, which will not interfere with the free circulation; the hands and fingers must be fully relaxed. The palpating hand and the forearm should be in the same axis; the forearm and the hand should not form any angle at the wrist. We feel with the palmar surfaces and tips of the last phalanges of one or both hands, using all the fingers or only one, according to circumstances. The fingers of both hands should be used simultaneously and equidistantly from the median line. This is done for the purpose of comparing the resistance under the fingers of each hand and for the purpose of confirming the finding of the one or the other hand. We use one hand to feel the area which is under scrutiny, and the other hand for comparing the relative resistances felt under our fingers, under each hand.

We must distinguish two methods of palpation: active and passive. In active palpation the examiner "goes for" the object which he is to palpate, the palpator is actively using his hand and fingers with greater or lesser effort. In passive palpation, the examiner does nothing more than to hold his fully relaxed hand or fingers upon the abdomen of the patient without causing any perceptible pressure, and permits his hands and fingers to be easily raised with the respiration of the patient. It is this method which enables one to "see with his fingers." It is very hard for the beginner to persuade himself of the efficacy of such a manipulation and, perhaps, he is not even inclined to dignify this procedure with

the name of palpation. But this is the only method by which we can perceive the very slightest changes. Repeatedly have surgeons disputed my diagnoses, which were made, first by inspection and then by this sort of palpation. They have disputed me even after they had had the opportunity of examining the patient under anesthesia. I had to use a good deal of persuasive talk to make them operate, and the operations confirmed my diagnoses. Quite recently I made the diagnosis of a tumor at the smaller curvature of the stomach. This diagnosis was very hotly disputed by a competitor, who wanted to bet all the money he had with him that I was wrong. The surgeon, to whom I referred this case for operation, did his best to dissuade me from the operation, even after the patient had been put fully under the anesthetic, upon the operating table ready for the operation. But I insisted; the operation, so unwillingly conceded by the surgeon, confirmed my diagnosis.

In the execution of this method we use the tips of the flexed last phalanges. The fingers of both hands are employed at equal distances away from the median line. Without at all lifting our fingers from the abdomen of the patient, they are very gently and very quickly pressed down to the extent of about one sixteenth of an inch or less and, when the pressure is released the resiliency of the abdomen raises the finger tips. This manipulation is performed at the rate of about sixty or eighty strokes a minute. The hands are not used both at the same time, but alternately. Now one hand performs those strokes, then the other. In this way our fingers perceive the differences of resistance under the fingers of each hand. Only a few strokes are executed by each hand at a time. Here it means the first impression. The strokes must not be of long duration; they must be very rapidly done. If, instead, the finger is pressed down slowly the perceptive power of the tactile corpuscles is lessened. By this method we feel the resistance or tension of the parts underneath.

We palpate for the following reasons: For defining the size and position of the several viscera of the abdomen and their relation to each other; for evidence of pain; for gross pathological changes; and for tumors. The trained fingers will easily palpate, not only the free border of the liver, but also the greater curvature of the stomach, the transverse colon, etc. Here we will use passive palpation. We will just permit our fingers, which are fully relaxed, to be moved with the respiratory movements of the abdomen; we will use no pressure whatsoever. For the palpation of the pancreas the stroking movements are used, but for the palpation of the kidneys and spleen active palpation is employed, as follows:

For palpating the right kidney, the palpator stands at the right side of the patient, facing the patient's head, the patient lying on his back. The physician places the palmar surface of his left hand against the right lumbar region of the patient and the palmar surface of his right hand upon the patient's abdomen, his hands trying to meet each other. If the left kidney is to be palpated, the physician remains at the right side of the patient, but the position of his hands is reversed, his right hand against the patient's lumbar region and his left hand upon the patient's abdomen. In certain

instances the kidneys are better felt with the patient on his side; on his right side to feel the left kidney and on his left side to feel the right kidney. For the prolapse or enlargement of the spleen the palpator examines as for the prolapse of the left kidney. Occasionally prolapsed kidneys are examined with the patient standing. For the active palpation of tumors, enlargements of viscera, etc., the inclined posture, mentioned before, gives the most excellent results. The patient is inclined with his head down, and the physician stands at, or near the shoulder of the patient, facing the patient's feet; active palpation is employed. It is surprising to find how easily this palpation is executed in this position and how easily pathological conditions can be felt. My explanation for the ease in this position is that the abdominal viscera fall against the diaphragm and thus relieve the tension of the abdominal muscles, which makes the palpation so much easier.

Tension, tenderness, and pain are elicited by passive palpation. The physician should never ask the patient whether he has pain here or there. Very often nothing more than the suggestion of pain will bring forth a positive answer to a nonexistent fact. While palpating, the examiner should watch the facial expression of the patient. When the physician touches a painful spot, the patient will manifest the pain by wincing or outcry; there is no need of asking him whether it hurts. A colleague called me in to make a diagnosis without asking questions. I observed nothing else than distention of the intestine. My friend was somewhat irritated when I told him that there was nothing but what I found, and in a spirit of reproach, he showed me that the right inguinal region was tender and the patient said so. "Well," said my friend, "Knapp, you are wrong this time, you see that there is something the matter here." Thereupon I pressed down into the left inguinal region. To the great surprise of my friend the patient gave unequivocal evidence of pain also in the left side. Now my friend himself palpated the left region and found the pain. The result of this episode was, that the patient was saved an unnecessary operation. In examining women, who complain of pain in either or both inguinal regions, one must be especially careful before he resolves upon a pathological condition of the annexa. Repeatedly have I seen mutilating operations performed and advised, when the only trouble was nothing more than a distention of the cecum or of the sigmoid flexure. It is true that women have ovaries and ovarian tubes, but they also have loops of intestines, the cecum, and the sigmoid flexure. As an illustration I will mention the case of a young woman who came to me to have herself "built up" before the operation for the removal of her left ovary. She mentioned the name of one who holds a very high position and is considered an authority everywhere as having advised her the operation. Perhaps this was not so. I examined her, and found, that the trouble was in the sigmoid but, nevertheless, I told her that the previous diagnosis of ovarian trouble was right. This I did, because I feared, that if I told her the truth, she would never come back to me and would be operated on and I wanted to prevent the operation; I lied to the patient for her own sake. After some

weeks, when I got through with my treatment I told the patient, that she was now ready for the operation. She answered, "Doctor, I don't think I am going to be operated upon; I feel no more pain there." I then told her the truth, for which she was very thankful.

Before proceeding with the palpation for tumors, we must think of the occupation of the patient, as this may have a decided bearing on the development of the abdominal, especially the recti muscles. Either one or parts of both these muscles may, by occupation, be hypertrophied. Evacuation of the patient's bowels before examining him will always be of use, as accumulated fecal matter will simulate tumors. Not so easy, if at all possible, is the diagnosis of passive fat tumors. By this expression Senator means, that isolated pieces of fat remain, while general atrophy of the fat of the body takes place. Such passive fat tumors do occur, and their diagnosis is difficult, if not impossible. Temporary "gas tumors" are freely movable tumors, sometimes felt in the region of the stomach; if we keep our fingers on such a tumor for some little time, we feel it resolve and disappear. The bane of every novice in palpation is the diagnosis of aneurysm of the abdominal aorta. Especially is the beginner led into mistakes, when the conditions for palpation are favorable, as in lean subjects, and in cases of diastasis recti. He feels the pulsating abdominal aorta, which is covered by the tissues overlying it and which enlarge the area of pulsation.

Having diagnosticated the presence of a tumor, the question is, where is it? Is it in the pylorus, which is by far the most frequent seat of a neoplasm, or is it in the lesser curvature, which comes next in frequency, or in the anterior or the posterior wall of the stomach? If a tumor is felt, and the question arises as to whether that tumor is on the anterior wall or the posterior, then such question may be decided by examining the stomach both empty and filled. If the tumor is felt best when the stomach is empty, the diagnosis of tumor of the posterior wall will be a proper one. But if the tumor is best felt when the stomach is full, then we are dealing with a tumor of the anterior wall. Tumors of the omentum and of the intestine must also be thought of, when palpating.

616 MADISON AVENUE.

PERNICIOUS ANEMIA.*

An Embryonic Factor in Its Etiology.

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In accepting the invitation to address your society this evening I have been bold enough to select for discussion one of the *bêtes noires* of medicine. It is not my intention to attempt a complete review of pernicious anemia, because the magnitude of the task would exceed the proper limits of a society paper. The investigations of the last few years, while not uncovering the pathology of the disease, have

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placed it in a clearer light, and indicated the direction in which we should look for the final solution. This is really a fundamental and important step in advance.

The anemias form one of the most important chapters in clinical medicine. Their classification is as yet unsatisfactory. The ideal nomenclature would be one based upon etiology. For this, however, we will have to await more exact knowledge. Literature is fortunately about rid of the epithet "primary," and it is to be hoped that the time will soon arrive when so absurd, so scientifically meaningless a nosological designation as "pernicious" will likewise become only a memory. There are a few salient and quite generally accepted facts concerning this disease which it seems to me should form the groundwork of its clinical and pathological conception. These facts have reference to the blood picture, the available data in regard to hematogenesis, and certain points in the clinical history and therapeutic results.

The characteristic changes of the blood in pernicious anemia are well recognized. With regard to the constancy and significance of some of these changes there is some diversity of opinion among observers. A very great reduction in the number of red cells is absolutely constant. No case is on record conforming to the general conception of the disease without this particular finding. The count always ranges as low as one to two million during the exacerbation; up to two and one half or three, rarely reaching four million during the remission. I have never seen a count in excess of four million during the period of greatest improvement. It is rather exceptional in my experience to have it much exceed three million, and in many instances it never reaches that figure. This is in striking contrast to the ordinary types of anemia resulting from most assignable causes, in which with a very low total hemoglobin content the red cell count will range from three to four and one half million.

Along with this low red cell count there is a considerable increase in the size of the cells. The average measurement in my cases has certainly been decidedly increased. This is questioned by some observers who contend that if the microcytes are carefully computed the average will be close to the normal. This is not true of my cases in which an average of 8.5 to nine microns is not uncommon. The thickness as well as the average diameter of the blood disc is probably also increased. This obviously increases the mass of the cell still more. It should be remembered, however, that an increase in the average diameter of the blood disc from, e. g., seven to eight microns, an increase in diameter of one seventh, would without any variation in thickness represent an increase of about one third in volume, as the area of two circles are approximately to each other as the squares of their diameters. I am therefore of the opinion that, the hemoglobin in the stroma of the erythrocytes in pernicious anemia is not of greater than normal density. However this may be, the total hemoglobin of the blood is rarely reduced equally with the red cell count, and the color index which is simply the quotient of the percentage of hemoglobin divided by the percentage of red cells, compared with the normal, is nearly al-

ways greater than one, and usually ranges from 1.2 up to 1.6, and may exceed two. The highest color index that I have found is 2.5.

There are other histological characters of the greatest interest. Poikilocytosis need not detain us, as it is not in the least peculiar to pernicious anemia. The persistence in the blood, however, of nucleated red cells is of the first importance. If they are of normal size for an erythrocyte of the circulating blood they are without any special significance in the diagnosis of pernicious anemia. They are simply the evidence of an overactive blood regeneration, an effort to replace the blood cells destroyed by some hemolytic process, known or unknown; but it is perfectly normal blood regeneration. They may be difficult to find at times in undoubted cases of pernicious anemia, and again be found in abundance in the acute anemias following severe hemorrhages, etc. They are, therefore, entirely without significance for the purpose of differential diagnosis.

The large nucleated cells known as megaloblasts, have, however, an entirely different meaning. There is quite general agreement among hematologists that their actual occurrence, at least during certain blood crises which occur in the clinical course of pernicious anemia, is essential to the diagnosis of the latter. They usually can be found, although it frequently takes protracted and tiresome search to find them. They are not essential at any particular moment, and it is perhaps conceivable that the megaloblasts might constantly lose their nuclei before entering the circulation. It is a question of rapidity of regeneration. There is some difference in opinion as to what really constitutes a megaloblast. Ehrlich's definition is a nucleated red cell from two to four times as large as a normal erythrocyte. As Ehrlich was the pioneer and discoverer of modern hematology it would seem as though his nomenclature and standards should be adopted as a recognition of priority, and for the further reason that a uniformity of terminology is desirable to avoid confusion of literature. Ehrlich's definition of a megaloblast is possibly arbitrary. The real question, however, is broader than priority of terminology and has to do with the distinguishing characteristics of embryonic blood, for the megaloblast is normal in the blood of the early human embryo and pathological in that of the adult organism.

Whether or not the megaloblasts are ever found in the normal adult bone marrow is still in dispute. Ehrlich, Lazarus, Bloch, and Cabot have never been able to find them, and believe that they do not exist under normal conditions. On the other hand, Graewitz, Engel, Naegeli, Emerson, and others, consider them as rare normal constituents of adult erythroblastic bone marrow. It seems curious that with the present perfection of technique such differences of opinion on such a question should exist. It would seem as though it must be due to varying conceptions of what constitutes a megaloblast. Doctor Emerson tells me, for instance, that he would label as megaloblasts only those cells which have a nucleus equal in size to the diameter of a normal erythrocyte. My recollection of megaloblasts is that there would always be in such a cell sufficient protoplasm surrounding the nucleus to make a cell at least twice the average size of the adult erythrocyte.

If this is correct then it would still conform to Ehrlich's definition above quoted, and does not help us in explaining the discrepancy. Hunter defines a megaloblast as a nucleated red cell from ten to twenty microns in diameter with an average of twelve microns.

I feel driven by the logic of the situation to conclude with Ehrlich and others that the cell which should be called a megaloblast, i. e., the large erythroblast, found not only in the bone marrow but in the blood of the embryo, probably does not exist in adult normal bone marrow, and this means that it does not exist anywhere in the normal adult human organism. When found by certain observers as very rare cellular constituents of normal adult bone marrow, they possibly represent localized embryonic reversions.

These cells are the only forms of erythroblasts found in early embryonal bone marrow, and these, or the megalocyte which is simply a megaloblast from which the nucleus has disappeared, are the only erythrocytes found in very early embryonal blood. Later in embryonal life the normoblast or erythroblast which is the size of the normal adult erythrocyte, appears and gradually increases as the megaloblast gradually decreases in number. At the close of embryonic life megaloblasts have become rare and normoblasts very largely predominant. For information concerning the blood in the early days of extrauterine life we naturally turn to the pediatricist. Holt tells us that during the first few days normoblasts are very numerous, but rapidly disappear, until after a few weeks they are not found at all. At this time any excessive hemolysis may reproduce normoblasts in the blood in large numbers and occasional megaloblasts. As time goes on and the adult type is developed neither normoblasts nor megaloblasts are ever found in normal blood. When an excessive demand is made upon the hematopoietic apparatus, as by a hemorrhage, normoblasts appear in varying numbers, although they may be found with difficulty or not at all. It is then fully agreed that the megaloblastic type of bone marrow, and therefore of blood formation, is the normal one in early embryonic life, but is gradually replaced by the normoblastic type during intrauterine life, although during the early period of extrauterine life reversions to the megaloblastic type are easy, becoming more and more difficult, and therefore more and more highly pathological, as time goes on. When adult life is reached it is by universal agreement pathological in the blood, although stated by some observers to occur rarely as a normal constituent of the bone marrow. As already indicated, so long as original investigators are not in accord, I adopt the view that they are not normally present even in bone marrow of the normal adult, partly because of the embryological facts just cited.

Another reason is the universally admitted fact of the nonappearance of megaloblasts in normal adult blood. About this there is no dispute. The erythroblast of the bone marrow undoubtedly becomes the erythrocyte of the circulating blood, the normoblast becoming an average sized erythrocyte, while the megaloblast becomes a megalocyte. This view is sustained by the fact that the primary ery-

throcyte in the circulating blood during the first two months of embryonal life has an average diameter of twelve microns instead of 7.5 microns in the normal adult blood. Now, if the megaloblast existed in normal adult bone marrow it seems to me that in its later form of the megalocyte it would certainly be found in normal blood. In its well marked larger sizes this is certainly not the case. But the erythroblastic marrow apparently exists to furnish circulating erythrocytes, and the complete absence of megalocytes from the normal blood is strong evidence to my mind of the nonexistence of its antetype, the megaloblast, in the bone marrow. If it exists at all, it probably is as a sleeping cell. W. K. Hunter says that the megaloblast, if present in the bone marrow of normal adults, must be extremely rare.

An important fact, however, should be recalled at this point. The normal erythrocyte has an average diameter of 7.5 microns. We must not, however, think of it as having anything like a fixed dimension. Variations in size from five to nine microns are within the normal range. The protoplasmic mass of the largest of these sizes, assuming the thickness to be the same, would be more than three times as great as that of the smallest. It is very evident in fact that the transition in size from a normoblast to a megaloblast; or, after the disappearance of their nuclei, from the normal erythrocyte to the megalocyte, is gradual. It follows, therefore, that the transitional forms of erythroblastic bone marrow, the variations between the normoblastic and megaloblastic types, must be equally gradual. The types are found at either end of the line—early embryonal and mature adult. The normoblastic type in early embryonal life would probably be quite as pathological as the megaloblastic degeneration of pernicious anemia in the adult.

I have dwelt at such length upon these questions because of their obviously fundamental importance; and because they furnish the basis of the particular view of the disease, or rather one aspect of it, which it is my intention to develop a little later.

Let us now turn to and review another phase of our subject. If megaloblastic degeneration of the bone marrow, and the resulting alterations in the blood picture are constant anatomical changes, why do these changes occur? This question obviously involves the etiology of pernicious anemia. The view that finds very nearly universal acceptance at the present time and which I think is entirely correct, is that it is caused by some toxine or toxines which are, while hemolytic, irritating to bone marrow. It is certain that several toxines can produce the combination of a megaloblastic degeneration of the bone marrow, a fatal hemolysis, and high color index. Experimentally, ricin and saponin, and clinically a toxine secreted by *Bothriocephalus latus* can produce this result. Just how this result is brought about is an interesting point in the pathology of the disease. Undoubtedly the most important attribute of the toxine or toxines which give rise to this ensemble, is their hemolytic power. The rapid destruction of red blood cells which is the most important incident in the disease, is evidenced by the liberation of iron and its deposit in the liver and

other organs, as shown by the hemosiderin reaction, and by the hyperplasia of the red bone marrow. This hyperplasia is the response of the erythroblastic tissue to the demand made upon it to supply the loss entailed by the excessive hemolysis. But this response is pathological in character. In the ordinary types of anemia resulting from malnutrition; hemorrhages, or even certain hemolytic toxins, the bone marrow hyperplasia is of the normal adult type; that is to say, the erythroblastic tissue is normoblastic only. The histology of the blood in such cases will therefore be normal, with the possible, and indeed not rare addition of normoblasts. The erythrocytes will be of normal size. In pernicious anemia, however, a distinct change takes place, and the erythroblastic tissue, having undergone hyperplasia, is largely megaloblastic. In other words it has reverted to the embryonal type.

The cause of this reversion, or embryonic degeneration, apparently finds its most plausible explanation in the irritation of the bone marrow tissue by the hemolytic toxine. About the existence of such a toxine there can be no doubt. There is plenty of evidence tending to prove its existence and its widespread effect upon tissues other than the blood. This is especially true of the central nervous system, and more particularly of the spinal cord. It has been asserted by some that the spinal cord lesions of pernicious anemia are the result of the anemia and not of the toxins causing it. This view is not at all tenable. In the first place, there is no special tendency to spinal cord lesion in the ordinary forms of anemia due to repeated hemorrhages, the toxins of septic processes, etc. Again, the cord lesion bears no constant relation to the severity of the anemia. It may be absent in moderately severe cases of pernicious anemia, and exaggerated when the symptoms of the disease are light. Not only so, but several cases are on record in which the symptoms of the spinal cord disease clearly precede those of the pernicious anemia. Byrom Bramwell has recently reported a case of this kind. In one of my own cases, unreported, the history pointed clearly to this order of events. Now there is only one rational construction to place upon these facts, which is that the spinal cord lesion and anemia are due to one and the same toxine, or possibly coexisting toxins.

When we come to examine the problem which has to do with the megaloblastic degeneration of the bone marrow it is not nearly so simple. The hyperplasia *per se* is clearly the result of the increased demand for erythrocytes. It is one of those marvelously delicate biological adjustments, which challenge wonder and baffle comprehension.

The fact that in this particular group of cases the compensating increase in erythroblastic tissue should assume a degenerative type, is susceptible of several possible explanations. Perhaps the most commonly accepted one is the effect of a toxine, or group of toxins, which by their specific action upon the newly forming bone marrow produces this result. Such a view, fitting in as it does with the best established theory of its toxic origin, is quite plausible and appears at first sight to be adequate. A careful review of all these facts has convinced me that it is entirely inadequate. Some other point of view, at

least some supplementary theory or working hypothesis, is necessary to bring the facts into line, and we may be quite certain that they can be so harmonized if placed in the proper light and proper relations. Facts never swear at each other, nor disagree, if properly understood. The apparent conflict is the penalty of our limitations.

The following are some of the facts which appear to me to make the exclusive theory of toxic irritation of the bone marrow quite untenable.

The hemolytic toxins of the intestinal parasite, *Bothriocephalus latus*, produce, as is well known, megaloblastic degeneration of the bone marrow; but it does not do so constantly. In a certain proportion of cases it is of the normoblastic type. Now, if the megaloblastic degeneration were alone the result of the fish worm toxine without auxiliary factors, it would be practically constant; but this is not the case. Furthermore, cases have recently been reported in which hookworm anemia, which was formerly supposed to be always normoblastic, was megaloblastic.

In the secondary anemias of children, megaloblastic degeneration is very common if it is not the rule. Clearly no specific toxine can be here assumed; in fact, no toxine of any sort is required. The embryonal tendency is still so strong that it asserts itself almost normally as a part of the simplest hyperplastic processes in the bone marrow.

Again, in anemias from a great variety of causes, megaloblastic degeneration occurs. Clerc and Guy, in a recent communication, aver that some of the secondary anemias occurring in cases of gastric cancer, cannot be distinguished in any way from the so called cryptogenetic type. The blood picture, the marrow changes, the symptomatology, and everything with the single exception of the remission is identical. There might, obviously, be a question of a toxine derived from the malignant neoplasm in these cases. If so, it would probably be the same in all, and yet, as a rule, it produces a normoblastic, but, as is now asserted, exceptionally a megaloblastic hyperplasia of bone marrow. Recent cases indicate that anemia from hemorrhage may sometimes be megaloblastic.

Finally, in the experimental anemia produced in animals by ricin poisoning, the curious fact has been established that relatively large doses, producing a rapidly progressive anemia, are associated with normoblastic bone marrow regeneration, while repeated small doses, acting more slowly, produce megaloblastic degeneration.

Undoubtedly something beside the specific action of a toxine or group of toxins is necessary, and I believe that in embryological faults or tendencies at least a plausible partial explanation may be sought. The existence of such special tendencies is strictly in accord with well known biological laws, and squares with clinical observations. The inherently weak myocardium; the tendency to atheromatous degeneration of the arteries; the instability of the psychic or motor brain cortex, may perhaps be thus best explained.

The *Schlummerzellen* theory of Grawitz is of interest in this connection. He believes that embryonal cells may remain in an inactive state, so completely atrophied from inaction as to be invis-

ble, or at least morphologically unrecognizable, and yet when subjected to the action of a suitable stimulant, e. g., a toxine, be capable of returning to full vigor and development. The theory struck me at first as grotesque—less so when I found that so able an investigator as Adami admits the validity of Grawitz's theory, although declining to follow him to the extent of the invisible condition of the cells.

The origin of malignant neoplasm in such embryonal cells furnishes a partial parallelism in another department of pathology. The stimulus which lights these sleeping embryonal cells into activity has been thought to be toxic by some, mechanical by others.

So far as the erythroblastic marrow is concerned, it is entirely conceivable that some of the megablasts present in the early embryonal bone marrow and which should, and, for the most part, do disappear, might remain as inactive schlummerzellen, or sleeping cells, throughout adult life.

If this theory is correct the incidence of pernicious anemia may be said to be, in part at least, a question of idiosyncrasy. It is not offered as a complete theory of pernicious anemia. The problems presented by that disease are too many sided to be thus easily solved. But, as possibly leading us a step farther in the elucidation of those problems, this theory of peculiar embryonic tendencies activated by special toxins appeals to me to be entitled to serious consideration.

CROTALIN IN THE TREATMENT OF EPILEPSY AND NERVE DISORDERS.*

By JAMES B. WOODRUFF, M. D.,
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Medical literature contains a great number of articles on the subject of snake bites, that from a therapeutic standpoint are of little value. It was noticed that persons with certain diseases, especially epilepsy, who recovered from rattlesnake bites were improved or cured. One of the best known pioneers in the study of snake venom is Dr. S. Weir Mitchell. During the past few years much laboratory work has been done in testing the hemolytic action of venom.

It has been the dream of many men to produce an antivenine to counteract the poisonous bites of reptiles and at present they have had a measure of success. Chief among these is Calmette, who has produced an antivenine for cobra poison, and in our country Dr. H. Noguchi, at the Carnegie Institute in Washington, has produced the same for rattlesnake poison. Rattlesnake venom has been known and used by the homeopaths for many years and is one of their highly prized remedies. When given by the mouth the venom has a decided effect, for an animal so treated may acquire an immunity which may be transmitted by its serum; the full effect of the drug, however, is not obtained. The pigeon,

the most susceptible of animals to the venom, can eat large quantities without serious effect. The hypodermic use of venom dates back only a short time, and brilliant results are now being obtained from its use in many diseases, mostly of a nervous origin.

Crotalin is the name applied to the venom obtained from a species of snake named *Crotalus horridus*, commonly known as the rattlesnake. The venom I use is obtained from *Crotalus adamanteus* or the diamond back rattler. The venom is extracted by causing the snake to bite on the edge of a glass funnel, the venom running into a bottle beneath. The fresh venom is spread on glass and allowed to dry, either in the air by gentle heat, or *in vacuo*, forming a yellow substance which when broken up resembles crystals. In this dried state it will keep indefinitely without deterioration. When required for use, the crude venom is purified, sterilized, and when diluted to the required strength is put in glass ampoules and sealed. I use eight different strengths representing from grain 1/200 to 1/25. A small amount of trikresol is added to insure its preservation. Because of its unstable character and its susceptibility to the action of heat and chemicals, the preparation of crotalin requires great care to insure a trustworthy product without any deterioration or loss of any of its elements.

Venom is the most polytrophic substance in the animal or vegetable kingdom. Noguchi says, "of all physiological products elaborated by diverse groups of specified cells of the animal body, none are so complex as the venom of snakes," and later he says in comparing it with the ferments of the digestive tract and to the leucocytes with their fibrin ferment, "the multiplicity of these active principles becomes, however, almost insignificant when compared with venom."

The two main constituents of crotalin are *hemorrhagin*, about ninety per cent., and *neurotoxine*, about ten per cent. The hemorrhagin has a special affinity for the endothelial cells of the walls of the blood and lymph vessels, and the neurotoxine acts mostly on the cells of the nervous system. By certain processes it is possible to eliminate or modify either of these elements.

The exact therapeutic action of crotalin is not understood, but it probably acts as a stimulant to the central nervous system, as is well illustrated by its effect in nerve exhaustion. Dr. R. H. Spangler believes that it has a decided influence in revitalizing the functions of the various organs. Another apparent effect is its ability to block undue outside stimulation on the nerves of special sense. Possibly this is illustrated by cases of insomnia where refreshing sleep is produced without any signs of narcotism. There is no question that it has a profound influence on the body and will certainly cause marked benefit in many conditions, especially of a functional nervous origin. There is usually an increase of the weight, sleep is better and less disturbed, and a general feeling of well being is marked. I have made a few blood examinations in cases treated and believe that a marked leucocytosis is produced, probably reaching its height about the fourth day. This leucocytosis may account for the beneficial effect in cases of phthisis. Dr. T. J.

*Read before the Thirteenth Annual Meeting of the Lake Keuka Medical and Surgical Association, July 11, 1912.

Mays has reported a large percentage of cures in these cases. Personally I have reports of only two such and both are benefited. I have case reports of epilepsy, asthma, neuralgia, and neuritis, including lumbago, sciatica, tics, and coccygodynia, laryngitis, pleurisy, chorea, debility, and nerve exhaustion, and in the literature are recorded cases of hoarseness, pneumonia, acute and chronic bronchitis, and incontinence of the urine, that have been treated by crotalin.

The skin at the point chosen for injection is scrubbed with alcohol or prepared by some other equally efficient method. Ordinary precautions should be taken not to enter a bloodvessel and the injection should be made rather deeply in the tissues or muscles. At the time of the injection there will be a stinging pain less marked if given slowly. Later there may be more or less pain and swelling depending on the size of the dose, the site of the injection, and especially on the susceptibility of the patient, which varies greatly. The pain, if present, will disappear after two days and the swelling after five days. It is seldom advisable to inject a dose large enough to produce an undue reaction, but if it is done and the pain becomes severe, most relief is obtained from a compress wet with a saturated solution of magnesium sulphate. An ice bag will also aid. It is best to give the first two or three injections in the back of the arm and always begin with a small dose, as grain $1/200$ or $1/150$. Later the injections are better given in the back where they cause very little reaction. The site should be changed at each injection. I have not seen a single injection followed by any untoward effect or infection, nor have I seen any report of such, and to date many thousand injections have been given. The psychic effect of a marked local reaction may be helpful in some cases, but I am led to believe that the beneficial properties of crotalin do not depend on the severity of the reaction. My rule after reaching the strength of grain $1/125$ or $1/100$, is not to increase the dose as long as improvement continues. If the case is not improved the dose should be slowly increased and some cases will take as high as grain $1/25$ and occasionally $1/12$. If grain $1/12$ is used I believe it should be decreased after a few treatments. The tendency is to give too large doses. The injections should be given as a rule every five to seven days, except in cases like asthma or neuritis where a more profound influence is desirable and they may be given every other day. A discussion of a few special diseases will make this more plain. I will first take up epilepsy.

In cases of epilepsy, as one would expect, the so called idiopathic cases are more amenable to treatment than the cases caused by trauma, tumors, etc. The crotalin treatments will modify the severity of attacks and often change their character from gros mal to petit mal. The intervals between attacks will be lengthened. The mental activity of the patient will be greatly improved. This is well illustrated in Case I, that of a girl of seventeen years, who was feeble minded, unable to read, sew, or do any work, even dishwashing. After the treatment she improved mentally so that now she reads the daily paper, story books, sews doilies, and actually argues logically with members of the family.

The apprehension and fear which cling to epileptics is very soon dispelled and they become cheerful. The stupidity and mental confusion following an attack is improved and shortened, and the after effects, as prostration, nausea, vertigo, and headache, are either stopped or improved. Involuntary urination is controlled in most cases. Menstrual functions, if irregular, are made more nearly normal. Patient VII had on an average fourteen attacks of gros mal and seventy of petit mal, making eighty-four in all every week. During the seventeen weeks she has been under treatment she has had forty-five attacks of gros mal and sixty-nine of petit mal, making 118 in all. It is thus seen that during this seventeen weeks we have relieved her of 1,310 fits.

Incidentally she has gained seventeen pounds.

Doctor Spangler, of Philadelphia, has treated many cases and reports thirty-six in the NEW YORK MEDICAL JOURNAL for September 9, 1911. Another article appears in the *Münchener medizinische Wochenschrift*, 33, 1911, by Doctor Fachenheim, of Germany. During a recent meeting of the American Association for the Treatment of Epilepsy, Doctor Spangler read a paper on the cure of eight cases. In treating epilepsy, the general rules for administration should be followed. One dose a week is usually sufficient, although some cases do better with one every five days for a time. After the dose has been raised to grain $1/100$, it should not be increased so long as improvement continues. A case should be under treatment for a long time, and if all seizures should cease, the treatments should be continued for at least a year, at gradually lengthened periods, to insure a more permanent result. Occasionally a case will be met in which the first two or three treatments will cause no improvement and may apparently make the case worse, but this will soon pass away and improvement follows. I usually tell this to patients in advance that they may not be alarmed. Large doses, grain $1/25$ or $1/12$, while they may be indicated for a short time, are liable to cause too much irritation and the fits will reappear or become worse. This is well illustrated by Case I, where grain $1/12$ caused the attacks to become more frequent and a drop to grain $1/75$ caused improvement. One may expect that the treatments will benefit every case and persistence may cure many. As regards cure, I do not know what length of period without a seizure should be considered as such, but I think it should be several years of close observation with the drug before one should apply the word cured.

In cases of neuralgia and neuritis, including sciatica, lumbago, tics, coccygodynia, etc., a few injections of crotalin will cure the case and often the first injection will give marked relief, causing your patients to be very grateful. One case of supra-orbital tic is reported where after the standard forms of treatment without benefit, the nerve was resected, giving relief. When the nerve regenerated, the old pain returned, and a few doses of crotalin gave relief for several months, when the man felt a slight return of the pain, but was again relieved by crotalin, and remained free to date, nine months later. Case XI was one of coxaigia that

was relieved entirely by four injections and has had no return in about a year. In Case XIV, the patient had pleurisy two years ago and has had pain in her side at times ever since. Last fall the pain was more marked and has increased in severity for the past ten months, notwithstanding the constant treatment of three good physicians, each in turn advising her to try electricity. Examination showed her lungs to be sound and the pain was apparently a neuritis. One injection gave her relief of all sharp pain and four caused a disappearance of all symptoms. In these cases the injections should be made, if possible, near the origin of the affected nerve, as, for instance, in intercostal neuralgia, along the spine. If this is impossible, place the medicine in the region of the pain. It is better to use small doses at intervals of two or three days than to give large ones with their attending reaction. In cases of tics of the face, the injection should be made near the affected nerve, if possible, but not into it, and the dose should be very small, about the face and neck usually not to exceed grain 1/150, and the initial dose should be much smaller.

In some cases of asthma the crotalin acts almost as a specific and has improved all cases on which it has been tried. In Case IX the patient was for years subject to attacks of asthma. When I first saw her she was propped up on pillows with the well known symptoms. An injection of grain 1/125 gave her relief in about an hour, and she remained free for three days, when the attack returned, and the second treatment gave entire relief. This woman stated that she had often had injections given for the attack, but had never been so completely and quickly relieved. Case VIII was that of a woman, sixty-five years old, short of breath, caused by auricular fibrillation and subject to attacks of asthma which awoke her every night. The attacks usually lasted two hours and sometimes recurred about 4 a. m. The treatments have given her very great relief, and now she either sleeps well all night, or if an attack does come, is very mild and of short duration. Incidentally the heart condition has entirely disappeared. In these cases the injections should be given every three or four days, and in case improvement does not follow, the injections should be made in the cellular tissue of the neck over the region of the vagus nerve on alternate sides and in doses of grain 1/300 to 1/200. In some cases a large dose with a very severe reaction will mark the beginning of improvement.

Cases of debility, accompanied by nervousness and loss of sleep, are improved, and feel invigorated. This is illustrated by a patient who awoke at 3 a. m. every morning and was unable to sleep more. Two treatments caused perfect sleep and a sense of well being.

Functional laryngitis seems to respond to the treatment of crotalin. This is illustrated by Case XVII, treated by Doctor Quigley. The patient was in the last stages of consumption and for two months had been unable to eat any solid food on account of pain in the larynx. For some time he had been unable to speak above a whisper. An examination showed that there was no ulceration and very little swelling in the larynx, but a marked inflammation. The injections of crotalin restored the

man's voice, and relieved the pain so that he was able to eat solid food until the time of his death, about three weeks later. Dr. T. J. Mays reports a case of painful laryngitis in a tuberculous subject where the injections in the arm did not give any relief. He then gave grain 1/200 in the neck over the region of the right vagus and in an hour the same dose on the other side. This was followed by a dose in the neck every other day, and absolute relief followed.

Chorea will undoubtedly be improved, and Case XV was that of a boy of nineteen years, who was scarcely able to walk on account of the choreic movements. He was not able to sleep before 4 a. m. and was greatly depressed. Four treatments, covering a period of nineteen days, caused the disappearance of the choreic movements, and his sleep was sound all night. In this disease one should use the standard forms of treatment and use the crotalin simply as an aid to bring quicker results.

While not quite germane to my title I wish to speak of tuberculosis. Dr. T. J. Mays reports a large percentage of cures in cases of tuberculosis. Case XVIII, treated by Doctor Marion, was that of a woman with chronic phthisis, complicated with asthma. Both apices were solid. When treatment was begun, in March, she had great enlargement of the cervical glands and tuberculous peritonitis with diarrhea. Under the treatment these conditions entirely cleared, the asthma improved; she now coughs a little and expectorates not at all. Case XIX is another one of phthisis of twenty-three years' duration with two or more hemorrhages a year. The patient had a constant pain in her side. Under treatment this pain disappeared, and her general condition is improving rapidly. She has very little cough and no expectoration. Several blood counts have shown hemoglobin eighty-five per cent. and the white corpuscle count about 13,600 on the day of injection and four days later varied from 15,400 to 25,000. It seems very probable that after a more extended use of the crotalin its range of usefulness will be greatly enlarged. Appended are two typical case histories.

CASE V. Miss C. (treated by Doctor Marion). On March 25, 1910, began to have attacks of *gros mal* three times a week with very frequent attacks of *petit mal*: May 4, given crotalin, grain 1/200; May 9, had two attacks of *gros mal*, no *petit mal*; May 13, no attacks; May 17, no attacks; May 22, no attacks, given grain 1/100; May 27, two *gros mal*, given grain 1/200; May 31, no spells, given grain 1/100; June 4, one attack, *gros mal*; June 8, no attacks, given grain 1/75; June 11, no attacks, given grain 1/50; June 15, one attack *gros mal*; June 19, no attacks; June 24, one attack *gros mal*, given grain 1/100; July 2, no attacks; July 8, two attacks *gros mal*.

During the nine weeks of treatment she had nine attacks of *gros mal* and no attacks of *petit mal*.

CASE VI (February 20, 1912). E. F., female, four years and six months old; one aunt had epilepsy, otherwise family history good. When about six months of age began to "hold breath." The spells had grown gradually worse until she had an average of six a day, lasting about a minute each. They were ushered in by a yell, a throwing of the arms backward, followed by stiffness and falling, then involuntary urination. Seizures were always brought on if she was spanked, hurt, or frightened.

The child received weekly injections of grain 1/300 to grain 1/175, and during the twenty-one weeks has had thirteen fits, five of which occurred

in one week. She is gaining in weight and her disposition is very greatly improved.

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513 MONROE AVENUE.

INSTRUCTION IN CHILD HYGIENE.*

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Child hygiene is a comparatively recent development or specialization of interest in a broader field of practical care of the health of the individual and the community. Infant hygiene has had a longer period of careful attention, chiefly because the infant is more apt to be retained under the immediate care of the physician than is true of the older child. Municipal hygiene, industrial hygiene, school hygiene, and other subdivisions of the kind have received considerable, in fact extensive attention, because of their direct and vital bearing upon community efficiency, which is another way of saying because they directly touch the public pocketbook and are to be reckoned in dollars and cents.

The large number of children have the fortunate or unfortunate habit of being obstinately healthy, even in unhygienic and unsanitary surroundings, if we exclude the occasional infections to which all children are liable, though not necessarily subject, such as diphtheria, scarlet fever, measles, and the like. Therefore, less attention was naturally attracted to the subject of child hygiene until the schools began to notice the laggards, the defectives, and the delinquent children. Subsequent investigations and study produced a growing sentiment in favor of helping these unfortunate and nonnormal children by paying attention to their personal hygiene at home and in school, and so child hygiene became an issue.

Even to-day, after several years of careful attention to the hygiene of childhood, the literature on the subject is meagre, so far as I have been able to discover. By that I mean the literature which bears directly on the hygiene of the child; its physical hygiene, its mental hygiene, its moral hygiene, and its social hygiene as influencing the individual at various periods of its growth.

We have a mass of undigested and more or less contradictory anthropometric data, very little of which is available to assist the parent and teacher in understanding the physiological variations occasioned by growth, and most of which is therefore inadequate to serve as a basis for practical hygiene. We have libraries of so called school hygiene; largely statistics and accounts of experimental investigations, and mostly unapplied or lacking in such elucidation as would make them readily applicable to masses of natural children by anyone but a trained statistical specialist in hygiene, who possessed the power to expend unlimited money, unhampered by boards of education, boards of health, or other collections of individuals not in perfect sympathy with the particular fads of the specialist.

We possess a constantly growing ocean of literature on "child study," which concerns itself chiefly with the distinctly pedagogical and psychic interests of the child, and gives but desultory and uninterested attention to the hygiene of physiological growth or, for that matter, to the real hygiene of mental growth. We possess, even in medical literature, but scant information on the physiological adjustments made by the complex human mechanism to the alterations in function, position, mechanism, and use of organs and systems incident upon alterations in growth. Here is a field for the statistician, for the experimenter, and for the digester and assimilator of literature to work together for the enriching of the literature of child hygiene.

Having thus briefly and sketchily reviewed the available means of instruction in child hygiene in the field of literature, let us consider what other sources of information are open to the parent, the teacher, and the general public.

I. Let us consider the instruction of the parents.
A. As individuals, concerned with the individual care of their own children, the parents can and naturally do turn to the medical profession for instruction in child hygiene. But few parents, even among the rich, feel that they can afford to go to the physician and pay the required fee in order to be told the details of simple cleanliness, fresh air, exercise, rest, work, and relaxation which would best benefit their perfectly healthy child. Consult the physician if the child is sick? Yes! Get a prescription for medication as well as the advice in simple hygiene, and you have another proposition in the parent's mind. On the other hand, few doctors, be they general practitioners or specialists, would feel that they had time to give such hygienic advice for well children in the consultation hours which they are accustomed to devote to the cure of suffering humanity. And the poor cannot afford such consultation at any time.

B. As collections of individuals, in social groups, in mothers' clubs, or in parents' meetings connected with the schools and settlements, parents can be instructed in the details of normal child hygiene by means of occasional talks or lectures, or of courses of teaching which shall include not only the telling but also the showing how to do definite, necessary, and simple things to maintain the health of the normal child. These talks should be given by the school doctors or the school nurses or both, to the mothers' clubs, or parents' meetings of the school

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or settlement, and may well be supplemented, especially among the poor, by demonstrations in the selection and preparation of the child's food, exercise, and clothing, by the school teachers of cooking, physical training, and domestic science; and they should also be supplemented by visits to the homes of the ignorant to reinforce and reiterate necessary items of domestic hygiene. Among the better classes, talks on child hygiene should form regular events of the meetings and lectures of the women's clubs; and might well form subjects for meetings at assemblies of men, such as lodge meetings and other gatherings where fathers and prospective fathers may be instructed in that vital personal hygiene which concerns themselves as it pertains to their sons and to their daughters. All such talks or lectures should be given by physicians, who are at once interesting speakers and authorities upon the subject they present, and should be supplemented by outlined reading.

C. Colleges and universities which train the young men and young women of the country might well include the subject of child hygiene in the curriculum as a practical subdivision of domestic or even political economy, in such a form that it should serve to stimulate an appetite for more detailed knowledge by the individual before he or she assumes the rôle and duties of citizenship and parenthood.

2. Let us consider the teacher's instruction in child hygiene. To be more accurate in the use of the present tense, I should have said, let us consider the teacher's lack of instruction therein. In no other profession with which I am in the least familiar does the practitioner know theoretically so much about the tools for the work and so little about the material upon which the work is to be performed. Our normal colleges and training schools for teachers ground their students most carefully in method and in matter to be taught, including much theory in psychology, in didactics, or induction, in *school* hygiene—note the emphasis on the qualifying adjective, please!—in grammar and rhetoric, in discipline, in domestic science, and other sciences which the future teachers may or may not be able to put into practice, depending upon the character and amount of supervision they are subjected to, and the whims of the school boards which may govern their individuality. But alas! it must be confessed, the physiology taught to the teachers is a farce, the hygiene is theoretically good for the school and practically impossible with the child. It is strange how insistently perverse is the human nature of the normal healthy child, which refuses to conform in any safe number of particulars to the data offered as characteristic of the average child in the carefully taught rules of "child study classes." Fortunately for the future of our country the children do persist in refusing to be average. Why lay so much emphasis upon the biology of invertebrates and lower vertebrates, details of which the high school teacher must give to her classes, and absolutely refuse to teach the teacher any practical biology of man? The child is the material upon which the teacher's work must be done. It is only fair and just to child and to teacher that the child's

nature should be known to, and understood by the person who is expected to develop and train it. The mistake pedagogy has made, and continues to make, is to emphasize the psychic nature of the child and ignore the physical, the fundamental nature which must be normal before the psychic can mature.

The courses in physiology and hygiene of childhood in the normal schools and training schools for teachers should be practical; not only didactic or inductive, but laboratory methods, being employed. They should be wide in scope and inclusive in range of years covered, and they should be compulsory on all teachers.

The physiology course should be practical, not only in the instruction of details of mature function in the digestive, the respiratory, the circulatory, the excretory, the muscular, the nervous, and the reproductive systems, but also in the variations of balance incident to, and consequent upon variations in maturity. The differences observable at stated periods of growth, and the effects thereof upon the physical efficiency of the child, should all be made definite and repeatedly emphasized to the pedagogical student. This should be a major course in the curriculum and taught by a specialist, preferably a physician or an expert from a physiological laboratory, and not by a teacher from the ranks.

The course in hygiene of childhood should be parallel with the physiological course and should aim to apply, to the uses of the teachers, the physiological truths and data furnished by the major course. Practical opportunity to apply the knowledge gained should be liberally supplied. The student teacher should be called upon to give evidence of efficiency by suggestions in actual cases for, 1, the improvement of home hygiene in specific cases; 2, for the adaptation of the ordinary school-room facilities to the greatest good of the greatest number of individual children in a given class; and, 3, by being required to make practical suggestions for the improvement of the existing school conditions, with a view to minimizing the nonhygienic obstacles in the paths of the children of the given class. This course also should be conducted by an expert.

3. Let us consider the instruction of the general public in the hygiene of childhood. It is to be accomplished in a variety of ways. First, by occasional free public lectures by well known and competent authorities; second, by newspaper and magazine propaganda; third, by lecture courses under the auspices of boards of education, boards of health, university extension, or local medical societies, and, fourth, by societies for the study of child hygiene, which give lecture courses, publish authoritative data in inexpensive and easily comprehensible form, and which in other ways attempts to mould public opinion.

The scope of public instruction should include such general topics as, 1, the character, preparation, variety, and amount of *foods* for children of varying ages; 2, the *ventilation* of the home, the nursery, the sleeping room, and the school and playroom; 3, the value of *exercise*, its kind, amount, environment, restriction, and scope, according to the age

periods of the child; 4, *outdoor life*, its educational, as well as its hygienic value and significance; 5, *sleep*, its amount, environment, bedding, clothing, and hours, according to varying age periods; 6, *clothing*, its nature texture, character, variety, amount, and the dangers of inadequate, superabundant, and improper clothing; 7, *work*, character and amount of mental, manual, and physical work which is legitimate for various stage of physiological maturity, dangers to the child and the community from child labor, purposes of the varied curriculum and its so called fads and frills; 8, *sex hygiene*, its relation to social morals, physical health, and community efficiency, its methods of instruction, time, place, and specific information to be given at different ages; 9, *play*, its meaning, supervision, time, and character; and, 10, *personal hygiene* and the *prevention of contagious diseases*.

Time forbids a more lengthy statement of the means, but we must glance for a few moments at the needs for instruction in child hygiene, and I would ask you to consider these under the following heads: A. Individual needs of children, parents, and teachers; B. school needs; C. social needs.

A. The individual needs of such instruction for the children are that they may have, 1, "fair play" and, 2, an opportunity to react in a normal fashion to environments adjusted to develop the maximum of efficiency with a minimum of wear and tear on health and of waste of energy.

The individual needs of instruction in child hygiene for the parents are to enable them to fulfill their duty to their child by providing, in so far as is physically possible, an environment which will promote the development in their offspring of the desirable traits of biological heredity and afford opportunity for the healthy maturing of all physical and psychical functions in due order and due time.

The individual needs of instruction for the teachers are that they may be enabled to make use of their knowledge, not only to prevent wear and tear for themselves and their pupils, but also by removing preventable obstacles and promoting normal conditions, facilitate the development and growth which they desire, and direct its course along natural lines at normal times.

B. The school needs which call for instruction in child hygiene are manifold and I shall suggest but a few of them: 1. The maintenance of a normal standard of efficiency in the physique, and therefore in the minds of the children; 2, the regulation of the curriculum to the capacities of the child, by avoiding overstimulation and consequent exhaustion through a crowded curriculum, and by avoiding understimulation and consequent inertia among the supernormal or highly gifted children, to whom the present curriculum might readily be adapted without being overcrowded; and by avoiding misdirected stimulation, prevent much truancy, delinquency, backwardness, and inefficiency; and, 3, the institution and development of a practical eugenics, which shall assist in the elimination of mental deficiency and preventable physical deficiency by a broad education in the value of physical and mental efficiency in community life.

C. The social needs, like the school needs for in-

struction in child hygiene, are legion and we have time to name but a suggestive few: 1. The prevention of child labor; 2, the dangers to child life of congestion of population and therefore its relation to community welfare; 3, the value of the healthy child as a community asset and its place in the social system; 4, the dangers to social efficiency, in childhood as well as adult life, from debauchery, prostitution, and all forms of vice; and, 5, the rights of the child,—who has not asked to be born,—and the social, moral, and physical obligations of its parents and the community in which it lives.

In closing, let me give a few items of interest which I have obtained as the result of a questionnaire sent out this last April, concerning what has been done, along the lines suggested in this paper, in the city of New York within the last few years. Inquiry brought out the facts that the following opportunities were freely used for the instruction of parents in child hygiene:

1. In schools, vacation playgrounds, offices of philanthropic organizations, and in milk stations, lectures on the care of infants and on child hygiene are given by doctors and nurses regularly appointed in the Board of Health under the division of child hygiene organized in 1908. This division also provides literature in the form of pamphlets for free distribution.

2. The Association for Improving the Condition of the Poor, under its Committee on Physical Welfare of School Children, give lectures in public schools, though it is not specified if these are pertinent to child hygiene *per se*. In 1910, this committee also employed dieticians to instruct mothers on the recreation piers in the cooking and serving of proper food.

3. The Public Education Association, through its Parents' Meeting Committee and in cooperation with the Society of Sanitary and Moral Prophylaxis, devotes its time to teaching of sex hygiene to the mothers' clubs of the public schools.

4. The Public Health Education Committee of the American Medical Association, through women's clubs, parents' associations, church organizations, settlements, and other groups, reaches large numbers of mothers and fathers. Its lectures are given by physicians, and in cooperation with the medical societies of New York and Kings counties, courses of lectures have been given every year since 1909, and are very popular. Many of these lectures are on child hygiene.

5. The People's University Extension Society also provides lecturers to settlements, institutions, schools, clubs, churches, libraries, etc.

These last two organizations provide lectures in other than the English language if necessary. Both have child hygiene as one of many topics in their list.

Many of the organizations mentioned provide lectures for teachers' clubs and organizations, as well as for parents, but so far as I have been able to learn, no provision is made for the *adequate* training of teachers by either the Board of Education or any of the other organizations or schools for the training of teachers in the city of New York. Teachers' College, of Columbia University, offers a

course in child study under a psychologist, and in school hygiene, including a course on the hygiene of childhood, under a physician and a nurse, but I cannot discover that this latter course is comprehensive or practical, and the child study is primarily psychological, all hygiene being incidental. The School of Pedagogy of New York University is even less active, the courses offered there being on the physical nature of the child and anthropological study of school children; but child hygiene is merely incidental. The training schools of the Board of Education offer nothing practical, and the physiology and hygiene they pretend to give are not so presented as to appeal to the teacher or student as important subjects.

The Board of Education in its public lecture courses occasionally includes some topic of child hygiene. The Board of Health conducts a more or less vigorous campaign in health education—child hygiene included—and many of the settlements in cooperation with such organizations as the Public Health Education Committee of the American Medical Association, the Public Education Association, and others in the first list given, are all actively engaged in teaching the public the importance of child hygiene.

101 WEST EIGHTEENTH STREET.

TUBERCULOUS MENINGITIS.

Report of a Case in an Adult, with Recovery.

BY SAMUEL SCHAEFFER, M. D.,
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CASE. H. Z., aged thirty-nine years, married, occupation butcher. I was called to see the patient July 18, 1912, when I found him unconscious and cyanosed, with his head thrown back, and with rigidity of the neck and lower limbs. From his wife I ascertained that the patient had come home for his dinner feeling perfectly well, and had eaten a hearty meal. Half an hour later, he complained of an intense headache, and a distressed feeling in the epigastrium which made him vomit. In an hour he became unconscious with tonic spasms of the lower limbs and twitching of face.

Examination showed the patient to be a well built, muscular man, with a large frame. The head was thrown back, neck rigid; pupils contracted, equal, and reacted slowly to light. There was some twitching of the muscles of the face, but no paralysis. Heart and lungs were normal. Abdomen was relaxed; no rigidity or tenderness. Extremities were rigid; knee jerks exaggerated; Kernig's sign present. Babinski's reflex present; no paralysis found. Respiration 20, pulse 76.

In the evening, the patient was removed to the French Hospital. On admission, his temperature was 102° F., pulse 94, respiration 26. He had now become delirious, complaining of an intense frontal headache, and was with difficulty kept in bed. A lumbar puncture was made and about 30 c. c. of a bloody fluid was obtained. The blood was not due to the puncture of a bloodvessel, for exactly the same fluid was obtained in six subsequent punctures. On July 19th his temperature had dropped to 99.2° F., and pulse to 74. The noisy delirium and restlessness continued. A lumbar puncture was again made, 30 c. c. of fluid obtained, and 30 c. c. of Flexner's meningococcus serum injected. July 20th, the patient showed no improvement. A blood count showed 19,300 white blood cells, with ninety-two per cent. polynuclear cells, one per cent. large lymphocytes, and seven per cent. small lymphocytes. The examination of the cerebrospinal fluid for meningococci and tubercle bacilli was negative. There

were three examinations made for meningococci and one for tubercle bacilli. A cell count of the cerebrospinal fluid showed ninety-seven per cent. polynuclear cells and three per cent small lymphocytes. The Wassermann reaction was negative.

In view of the fact that nothing else could be done, it was decided to continue with the injections of the meningococcus serum. He was accordingly given injections of the serum on the 20th, 21st, 22d, 24th, and 26th, when they were discontinued on account of no evident improvement.

On July 27th a consultant, who was called in to see the patient, suggested the possibility of a syphilitic meningitis. He was accordingly put on intramuscular injections of salicylate of mercury and potassium iodide in increasing doses. This treatment was discontinued after a week, as the patient did not improve.

On July the 26th the temperature rose to 104.8° F., pulse 124, respiration 28. On the 27th the temperature dropped to 99° F., pulse to 90. From July 28th to August 1st, when the patient left the hospital, the temperature ranged between 99° and 101° F., the pulse between 82 and 100. His mental condition had cleared up somewhat; he would answer a question occasionally; but for the greater part of the day he was dull and apathetic. Toward evening he would become restless and delirious, and would have to be restrained in bed. On August 1st his wife requested that he be taken home. This was done; and he remained in the same condition in which he had been in the hospital for about two weeks.

About the middle of August he began to show improvement; his mind became clearer, his delirium gradually subsided, and in the last week of August he was allowed to sit up. He was then sent to the country for two weeks, and during this time his mental condition gradually cleared up. September 18th the patient walked into my office and told me that he was feeling fine; the only thing that he complained of was his poor memory.

August 30th, the Department of Health reported that the guineapig which had been injected with the cerebrospinal fluid proved to be tuberculous on autopsy.

The points of interest in this case are:

1. The sudden onset of the attack, without any previous history of illness.
2. The continued presence of blood in the cerebrospinal fluid. It has occurred to me that the presence of blood might suggest tuberculosis, just as a bloody pleuritic fluid would.
3. The high polynuclear count. This may be accounted for by the presence of blood in the cerebrospinal fluid. Still, Marcon and Mutzner report a case in which the cerebrospinal fluid contained mainly polynuclear leucocytes, yet the autopsy revealed a well advanced tuberculous meningitis.

Several cases of recovery from tuberculous meningitis have been reported. Freyhan reported the first case of recovery, perfect after several months. Henkel reported the second case on record in 1900. Barth, in 1902, reported the recovery of a child, two years and nine months old, in whose lumbar puncture fluid tubercle bacilli were found. Gross, in the same year, reported a case in which three lumbar punctures had been made, the first showing tubercle bacilli, the other two being negative, yet the case went on to recovery.

A case is reported by Jansen where undoubted tuberculous meningitis was cured by daily administration of 900 grains of potassium iodide, and an autopsy, three years later, showed a former tuberculous meningitis.

Dr. W. Hale White, in *Brain*, has also reported a case of tuberculous meningitis of undoubted authenticity, in which recovery occurred.

360 WEST THIRTIETH STREET.

VANADIUM SELENIUM IN CANCER.*

Its Histological Effect.

By FELIX VON OEFELE, M. D.,
New York.

Of the different tumors, sarcoma and the carcinoma we call malignant. Especially for carcinoma we state that selenium compounds are a specific treatment. In sarcoma the selenium must be combined with other active agents.

The basis of this selenium treatment is a chemical action of selenium as an oxidizer; especially in carcinoma selenium increases the oxidation of sulphur compounds. But beside this chemical action everybody wishes to know the histological effect of selenium on carcinoma. The histological results of selenium on the tumor I shall explain.¹

In practical medicine typical tumors are very rare. Mostly a real tumor has the main characters of a certain kind and partakes slightly, in some ways, of the character of other kinds of tumors. We will not, because we cannot explain whence this intermediate character mostly comes. But it is a fact, that an intermediate tumor, partly of malignant and partly of benign character, can either grow more malignant or more benign. It is bad, obviously, if a tumor becomes more and more malignant in character. The intention of therapeutics should be to change a malignant tumor into a benign one, if possible, and this is exactly what selenium does.

A sarcoma is a malignant tumor, a conglomeration of embryonic cells in a histological as well as a chemical sense. In a carcinoma about the same kinds of cells are placed in crypts, the intervening places are filled by connective tissues, and it has the appearance of a pseudogland. Sarcoma and carcinoma make sprouts in the neighboring tissue, just as a plant grows.

A demarginated fibroma is exactly a contrary kind of benign tumor. But very often we find in practical cases a fibrosarcoma or a fibrocarcinoma. As above stated, it becomes worse, if the sarcoma or the carcinoma tissues increase, and it improves if the fibroma characteristics overpower the malignant characteristics.

In cases of carcinoma and sarcoma cure by selenium compound, it is impossible to cut out at certain times pieces of the tumor and to make a series of histological observations on the selenium influence on the tumor tissue. It is only occasionally that we get specimens of both the earlier state of the tumor and of the treated tumor. The best opportunity came in a case where the original tumor and recidives were operated on. Later on, the recidive was treated by selenium compound. After some weeks of the selenium treatment, pains occurred from the pressure of scars on nerve trunks. A part of the tumor was again taken out. We have some other occasional observations on treated patients.

It would go too far to give, point by point, the results of these examinations and to show how these

points form a mosaic picture of conclusions, which are not yet without missing parts. But sometimes we can restore these parts. To such restoration the conclusions of Professor Wassermann on mice tumors are very valuable.

Our impression of selenium action is this: The selenium affects particularly the crypt cells of carcinoma, which I shall call the parenchyma. These cells become, by selenium treatment, colloidal. The parenchyma swells up from place to place and becomes degenerated. The colloidal detritus of these degenerated parenchyma cells becomes more and more resorbed and new connective tissue replaces the crypts, increasing the stroma. In a later state this connective tissue retracts. The tumor does not spread further over the boundary line after the selenium treatment. The tumor becomes, therefore, more and more of the demarginated character of fibroma. And this fibroma can contract more and more in the character of a scar.

But the tumor will not absolutely disappear by the selenium compound treatment. This furnishes some practical instructions for the selenium compound treatment in cancer cases. If in cancer cases a radical operation is possible, this radical operation should be done. But the success of this operation should be improved by subsequent selenium compound treatment, because this treatment will prevent recidives and metastases. In the second case it will be possible to have an operation, although not a radical one. In these cases the operation can be done and the residue of the operated tumor can be treated, internally and locally, by selenium compound. In the third case the malignant tumor is no longer operable. In this case the selenium treatment is absolutely necessary. If the condition of this patient and of the tumor is improved, an operation can be done later on. An operation is not indicated in the state of colloidal degeneration of the parenchyma and soft swelling of the tumor. But it seems that in the state of fibroid retraction of the tumor an operation will be very often necessary.

Some irritations are always there by a hard, fibroid scar. And the feeling of the patient can be improved by cutting out this hard tumor. If before the cancer was inoperable, the transformation into a fibroma gives to the surgeon the opportunity to do a new and useful operation, whereas the surgeon was before useless, and could not operate. That is what some selenium compounds can accomplish in cancer cases.

326 EAST FIFTY-EIGHTH STREET.

THE AUSCULTATORY METHOD OF BLOOD PRESSURE READINGS,

With the Aid of a New Instrument.

By JAMES F. PRENDERGAST, M. D.,
Philadelphia.

The value of the sphygmomanometer as a diagnostic help is acknowledged by all up to date clinicians: the factor which has caused the greatest amount of discussion and which has been the stumbling block to many doctors using it, is the taking

*See my letter on this subject, *Medical Record*, June 22, 1912.

¹My observations have been mainly of the action of vanadium selenide, V_2Se_3 (selenium compound) prepared under my direction; I have also prepared Va_2Se_2 and Va_2Se_3 .

of the diastolic pressure. The reading of the systolic pressure is easily acquired with a little practice, and is fairly accurate for clinical purposes.

The taking of the diastolic pressure, however, is an entirely different proposition, and I venture to add, very few users of the instrument obtain accurate readings of the diastolic pressure and fewer yet by far can interpret its value after they have obtained it. This is based on a large experience in demonstrating and teaching the value of the sphygmomanometer for clinical use. It is this uncertainty and difficulty that has caused so many different makes of manometers to be placed on the market, each new model asserting some advantage over its predecessor particularly in the taking of the diastolic pressure; all of them however depending on the tactile sense, the excursions of the mercury in the tube or on the oscillations of the needle in the pocket type of instrument.

Now it is very difficult, at times, even for the expert to say just which is the widest excursion of the mercury column or the greatest swing of the needle, at which point the diastolic pressure is determined, hence one can imagine the difficulty of the inexpert or the average physician who is only occasionally called on to take blood pressure readings. I have seen a number of cases where the variations in the swing of the needle and the play of the mercury column were so nearly equal that it was almost impossible to read accurately the diastolic pressure.

To overcome this difficulty the writer advises the use of the auscultatory method of determining the blood pressure.

In October, 1905, Korotkoff, of St. Petersburg, first advocated the determination of blood pressure by auscultation, and this method has been thoroughly studied and generally adopted by the German clinicians as a routine procedure. Ettinger, Ehret, Krylow, Bozowski, Fischer, Sterzing, and Schrumph abroad, Goodman, Howell, Gittings, and Norris in this country have studied and investigated this method and recommend it as more accurate than by palpation of the radial pulse or watching the oscillations of the column of mercury or the needle.

In order to enable the physicians to take the blood pressure readings more accurately and to make them of greater clinical value to the profession as a diagnostic and therapeutic guide, my instrument makers have placed on the market, at the suggestion of the writer, an auscultoscope. It consists of a two inch band to which is attached a metal bowl or cup the face of which has a very delicate diaphragm with a centre projection to fit more snugly to the surface of the arm over the brachial artery just at or below the bend of the elbow. Flexible rubber tubes are connected with the drum or body of the instrument to which are attached hard rubber ear pieces. It is called the Bowles sphygmometroscope and resembles the Bowles stethoscope with certain modifications; it is attached to the arm by a two inch band.

The instrument is intended for use with any kind or form of sphygmomanometer either pocket or mercury. Its method of application is to place the band on the arm one or two cm. (one half to one

inch) below the arm band or cuff of the sphygmomanometer at the bend of the elbow, having the projection on the diaphragm of the drum directly over the brachial artery before it divides into the ulnar and radial, care being taken to avoid pressure.

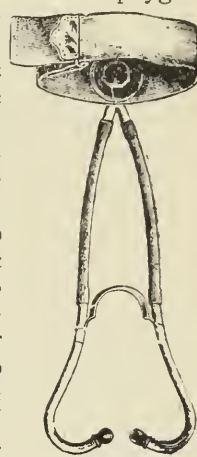
Pump the cuff connected with the manometer with air until the radial pulse is cut off, open the release valve, and allow the air to escape slowly from the arm band. The first impulse or sound heard is the systolic pressure, a clear thump or tap caused by the sudden stretching of the walls of the relaxed vessel and the rapidity of the blood stream (Krylow); first phase. Then follows a murmur (second phase) followed by a clear sound (third phase), clear sound becomes dull (fourth phase), disappearance of all sound which is the diastolic pressure (fifth phase). The systolic and diastolic pressures are read off the scale of the sphygmomanometer as the sounds are heard. Some clinicians accept the fourth phase as the diastolic pressure, but the men who have had the greatest experience and have done the most experimental work accept the fifth phase as the true diastolic pressure.

Where one is merely trying to read the systolic and diastolic pressures it is not necessary to attempt to interpret the different phases. The essential thing to remember is, that the first tap or sound is the systolic pressure and just at the disappearance of all sounds is the diastolic pressure. Clinician experience and laboratory experiments will in time help us accurately to determine the meaning of the different phases or sounds. For instance, Fischer found in cases of high diastolic pressure the first sound or phase was loud and clear, the second when present was short but clear. If the third was short the fourth could not be heard.

In arteriosclerosis with hardening and loss of elasticity in the bloodvessels, Krylow says, the auscultatory phenomena are apt to be more pronounced. According to Ettinger's experience the rapidity of the blood stream increases the auscultatory phenomena. He also believes that absence of the third phase alone denotes moderate weakness of the heart muscle, while coincident absence of the second and fourth phases indicates that the weakness has reached a high degree. When there was improvement of the heart in some of his cases the third phase returned. In a case of fatal pneumonia with sudden cardiac failure, on the day of death there occurred a sudden disappearance of the second and third phases. Howell and Goodman say that absence of the fifth phase is pathognomonic of aortic insufficiency.

In many cases of aortic regurgitation the determination of the diastolic pressure by auscultation is impossible owing to the well known "pistol shot" sound (Gittings).

To get accurate results the cuff of the sphygmomanometer should be a wide one, twelve cm., and fit the arm perfectly. The patient must cooperate



Prendergast auscultoscope.

with the physician and keep perfectly quiet or sounds may be produced which can be easily misinterpreted. The advantages of having the sphygmometroscope band strapped on the arm are: it gives us freedom of hands to manipulate the release valve and palpate the radial pulse, combining the two methods, one checking the other. The bowl of this instrument fits more snugly to the arm and can be held in position directly over the vessel, thus magnifying the sounds and, not being supported by the hand, extraneous sounds are prevented.

The auscultatory method is more accurate, and the reading of the diastolic pressure much easier and more reliable. The readings from actual demonstrations are from five to ten mm. Hg. higher than by palpation. The systolic pressure is generally higher and the diastolic is lower, giving us a wider pulse pressure which from experimental data is closer to the true blood pressure than that found by palpation.

The writer advises, until experimental research and clinical study prove the contrary, that the last "phase" or the disappearance of all sounds be accepted as the true diastolic pressure. This is the teaching of the majority of clinical workers who have had the largest experience in this line of research. Furthermore, if this suggestion is followed our blood pressure records will be standardized and of greater value.

Goodman and Howell say: The auscultatory method is useful in differentiating certain organic and functional derangements. It was found that any arrhythmia which may be present is noted earlier by the auscultatory method than by feeling the pulse or listening to the heart. By this method true organic cardiac lesions can be differentiated from a neurosis. In organic lesions there is a uniformity in sequence of readings, in neuroses the readings are marked by variations in sequence and a variation in the systolic and diastolic pressures.

SUMMARY.

For routine estimation of the systolic and diastolic blood pressure, the auscultatory method is by far the most accurate and satisfactory. The sphygmometroscope by magnifying the sounds and giving the user the freedom of his hands renders the work more accurate, simpler and pleasanter.

REFERENCES:

GOODMAN and HOWELL, *American Journal of Medical Sciences*, September, 1911; IBIDEM, *University of Pennsylvania Medical Bulletin*, November, 1910. GITTINGS, *Archives of Internal Medicine*, 1910. In an article in the *Interstate Medical Journal*, 1912, 10, Warfield accepts fourth phase as the diastolic pressure.

4012 CHESTNUT STREET.

Abstracts and Reviews.

THE INFECTIOUS LESIONS OF BLOODVESSELS.*

By F. B. MALLORY, M. D.,
Boston.

Associate Professor of Pathology, Harvard Medical School.

Infectious lesions of the bloodvessels may be divided into two main types: those in which the infecting organism is very virulent and rapidly destructive of the tissues, and those in which the organism is only mildly virulent and the process of

destruction is a slow one. It is with the latter group that we will deal chiefly, for it is in this group that we can find the several stages of development of the lesions.

The occurrence of infectious lesions of the bloodvessels is far more common than is generally thought. The chief organisms which are found as the causative agents of the several different types of lesions are: The ordinary pus cocci in nonvirulent and virulent strains, the streptococcus of Poynton and Paine, the glanders bacillus, that of tuberculosis, leprosy, and the spirochete of syphilis.

The vascular lesions are the result of local infection by one or another of these agents and may be of several types. The vessel may become involved from within or from without by direct infection, or it may become damaged as the result of infection of its nutritive vessels or of the surrounding tissues with resulting obstruction to the blood supply.

The local infection of the vessel wall causes a lesion in one of three ways—by the actual presence of the infecting organism, by the toxine which the organism liberates, or owing to the toxic products of destroyed tissue cells. Each of these factors may cause the attraction of endothelial leucocytes, polynuclear leucocytes, or lymphocytes. The lesion may be the result of a combination of two or more of the processes mentioned. It is usually the rule, however, for each type of organism to cause a characteristic type of lesion in a characteristic manner.

Depending upon the circumstances of location and amount, the exudation or accumulation of fibrin may be a complication or a beneficent process. It may occlude the lumen of the vessel when it collects on the intima. Or here it may undergo softening with the production of emboli. It may accumulate in such large amounts outside the vessel as to compress it and close its lumen. Last, it may be present in smaller amounts and by subsequent organization be the means of causing healing of the vessel.

When mild strains of the streptococcus are the causes of the lesions these organisms will usually be found to have died out in many of the areas involved. They produce necrosis of the vessel wall, with the accumulation of fibrin, and the attraction of polynuclear and endothelial leucocytes into the area outside of the vessel with the formation of an abscess. Fibrin does not accumulate within the lumen in these cases as a general rule, but in a case of arteritis nodosum, in which the infecting organism was similar to the rheumatic streptococcus of Poynton and Paine, there were large collections of fibrin in the lumina of a large number of the vessels. It might be remarked, at this point, that the endocardial lesion in rheumatism is, in reality, a lesion of the bloodvessels. These septicemic lesions are to be found scattered widely throughout the body. Their ultimate results may be death by rupture of a large vessel, death before the destruction of a large vessel has developed, or the lesions may undergo healing. The healing may be by obliteration of the lumen of the vessel and organism, or it may take place by organization of the fibrin, as a result of the invasion of endothelial leucocytes, without the obliteration of the lumen of the vessel. In the latter case miliary aneurysms are common. In the course

*Summary of a lecture delivered before the Harvey Society at the New York Academy of Medicine, December 14, 1912.

of healing of damaged vessels the smooth muscle cells never regenerate.

Vascular infection by the glanders bacillus most closely resembles that by the pus cocci, and the formation of small abscesses in the wall of the vessel is very common. The toxine which the bacilli liberate causes necrosis with the exudation of serum and the attraction of polynuclear and endothelial leucocytes. In the abscesses some of the endothelial leucocytes fuse, under the influence of the toxins, to form large cells with large lobulated nuclei. The end results of vascular infection by this organism are similar to those with the pus cocci, save that healing seldom occurs.

When the tubercle bacillus is the cause of the vascular lesions a careful study of specimens will show that in the earliest stages the bacilli are taken into the endothelial cells lining the interior of the vessel. The toxine of these bacilli has the widest scope of attraction of any known. It causes the accumulation of very large numbers of endothelial leucocytes and lymphocytes, which, owing to their excessive abundance, cut off the blood supply of the tissue in the centre of the area, and in which the infecting bacilli are situated. The tissue then undergoes anemic necrosis with the formation of the typical tubercle. Practically all tuberculous lesions begin in the endothelial lining of bloodvessels. Surrounding the accumulation of cells a reparative process begins by the invasion of the area by fibroblasts. In the bloodless central portion some of the endothelial leucocytes fuse to form the multinuclear giant cells. It has been observed that these giant cells form around particles of fat or fatty matter, and it is believed that their formation is in response to some chemical property of this fat.

When the tuberculous process involves capillary vessels, or the terminal veins of the spleen, a minute area of necrosis results. When, however, large vessels are involved the process is different, for the infection in these is not from within the vessel, but through the minute vessels of the adventitia. In these cases, therefore, the lumen is seldom infected and thrombi do not form. These vessels sometimes do ulcerate through, however, with the liberation of large amounts of tuberculous material into the blood stream and the production of general miliary tuberculosis. Aneurysm rarely results from tuberculous infection of the vessels. General miliary tuberculosis is the typical condition, after which all widespread infective vascular lesions pattern, as far as distribution is concerned.

The bacillus of leprosy is a mild infecting agent and owes its action almost purely to mechanical factors. It produces little toxine, but it continues to multiply in the endothelial cells of the vessels and the fixed tissue cells. The main cause of damage to the vessels, and the tissues in general, is the result of the accumulation of the endothelial leucocytes, which, by crowding of the vessels in the infected area, cut off the blood supply or compress nerve filaments with the production of areas of necrosis or anesthesia. Subsequent invasion of these areas by fibroblasts and the production of connective tissue gives rise to the sclerosis seen in the disease.

The last organism to be considered, the spirochete of syphilis, is the hardest to demonstrate in the

tissues for two reasons; first, on account of its poor staining properties; second, because it soon dies out in a given focus. Like the lepra bacillus, it produces little toxine. The lesions which it causes are very slow in development and almost always show the phenomena of destruction and regeneration progressing simultaneously in a given lesion.

In syphilis the common vascular lesion is occlusion due to the accumulation of endothelial leucocytes and lymphocytes. Necrosis and diffuse inflammation follow as secondary phenomena. Both the intima and the adventitia are subject to primary infection. The lesion is marked, in its later stages, by the enormous accumulation of fibroblasts, which bring about the organization of the tissue infected. In syphilis the occurrence of miliary aneurysms is quite common, for the destruction of the vessel wall progresses very slowly and is accompanied by coincident regenerative efforts, so that the loss of tissue is supplied by scar formation as fast as it advances.

There is one common feature to all vascular lesions of an infectious nature, and that is the diffuse distribution of the lesions. It should be borne in mind, however, that each type of infecting organism has its tissues of predilection, and in these areas the infection is the greatest.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXIX.—How do you manage chronic ulcers of the leg? (Closed December 16th.)

CXXX.—How do you treat subacute and chronic laryngitis? (Answers due not later than January 15, 1913.)

CXXXI.—How do you treat psoriasis, and with what success? (Answers due not later than February 15, 1913.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXVIII has been awarded to Dr. Maurice Schneek, of New York, whose article appeared on page 29.

PRIZE QUESTION CXXVIII.

THE TREATMENT OF INFANTILE CONVULSIONS.

(Continued from page 31.)

Dr. D. E. Hottenstein, of Millersburgh, Pa., writes:

Few, if any, of the exigencies in infancy are more alarming and distressing to parents than convulsions. It is necessary to adopt active treatment immediately, for the sake of the parents as well as the little patient.

An appreciation of the causes of convulsions sug-

gests the treatment. These patients as a rule belong to one of two classes, rhachitic or nonrhachitic. To which of these classes the case belongs can usually be diagnosticated at first sight and the prognosis given accordingly. In the first class convulsions are of serious import, while in the latter the outcome can be made favorable.

The immediate indication in treatment is the same in both classes, i. e., relaxation and clearing the *primæ viæ*. Intestinal toxemia is so frequently the cause that it is safe to assume, when a child in apparent health is seized with a convulsion, that it is of gastroenteric origin. In order to relax the child the time honored mustard bath at 100° to 105° F. still holds first place; immerse child to the neck. While in the bath there should be brisk friction of the trunk and extremities, particularly the latter. In a great majority of the cases in less than five minutes relaxation occurs and there is evidence of a return to consciousness. However, should there be no reaction in this time, remove the child from the bath, wrap in woolen blanket, place an icecap to the head, hot water bottle to the extremities, administer chloroform until relaxation *does* occur, have attendant give injection of soapy water until bowels are thoroughly washed out. If there is a recurrence of convulsion when chloroform is withdrawn, give chloral by the rectum sufficient to prevent a recurrence. It is best to attach to the syringe a small rectal tube or a large soft catheter. This should be introduced for at least nine inches, so that the solution will be carried to the descending colon where it will be retained better than if introduced simply within the anus. The initial dose should be at six months four grains, at one year six grains, at two years eight grains dissolved in an ounce of warm milk. Pressing buttocks together and pressure against the anus will prevent the solution from escaping. The effect of the drug is usually obtained in twenty minutes and it should be repeated at intervals of from two to six hours as required to control the convulsions. Continue in diminished doses as long as there are signs of nervous irritability such as twitching and involuntary muscular contractions.

As soon as the child can swallow give one tenth grain doses of calomel for six doses, and follow with a teaspoonful of castor oil. After there is a thorough clearing of the intestinal tract there is very little danger of recurrence in the nonrhachitic cases and with care in feeding for forty-eight hours the child will be normal, unless there is a continued irritation which will need attention, such as from congested gums from teething, which require lancing, constipation, which indicates modification of diet or laxatives. Phimosis indicates circumcision intestinal worms call for an anthelmintic, or there may be an infection of which the convulsions are the prodromal symptom, such as scarlet fever, pneumonia, or meningitis.

In the rhachitic children, usually bottle fed, the feeding and care of the intestinal tract after an attack are of paramount importance in preventing recurrence. The diet must be modified or perhaps entirely changed to overcome constipation or diarrhea and improve general nutrition. Fresh air, fruit juice, and codliver oil inunctions frequently bring

about remarkable changes in a short time, and the tendency to recurrence decreases with the general improvement.

Dr. C. B. Weller, of Austin, Tex., writes briefly:

On arrival, a physician generally finds the family in a state of excitement, so, to stop excitement as well as the convulsions, I use a few drops of chloroform, which relieves the convulsions almost instantly, and, while I am keeping the child under the influence of the drug, I request some member of the family to make a moderately warm solution of soap-suds and water, which I use as a cleansing enema. Washing the lower bowel well generally helps to control convulsions as well as to put the bowel in condition to absorb an injection of bromide of sodium and chloral hydrate in appropriate doses for the age of the child to control convulsions (to cause retention, I hold buttocks together for a few minutes). If this does not control the convulsions, I use morphine sulphate in appropriate doses, giving it hypodermically, which also has a good effect on the circulation. If infant, between attacks, can swallow, I give castor oil to clean out the whole alimentary tract, as most of my cases have been caused by some error in diet and have been reflex from intestinal tract. If child seems to have fever, I apply icecap to head and try temperature afterward. I use mustard pack for congestion to internal organs, which causes a cutaneous hyperemia. I have found good results from turpentine stupes to abdomen in cases of intestinal cramps. I use one drachm of turpentine to one quart of hot water. This will in some cases stop cramps and inhibit reflex convulsions from the intestinal tract.

After convulsions are under control, then I make a thorough examination and try to ascertain cause and then I use appropriate remedies to remove cause, if possible, but at the same time I keep up symptomatic treatment for a day or so, e. g., chloral and bromides in appropriate doses.

Dr. Peter C. Ten Eyck, of Syracuse, N. Y., observes:

The physician will obviously lose no time in reaching a little patient who is suffering from infantile convulsions. Once on the ground his treatment will be divided into two stages, the immediate and the subsequent treatment.

Immediate treatment: Inject immediately, hypodermically, morphine sulphate, with or without atropine, suiting the dose to the age. I have never found it necessary to repeat the dose, but should do so if necessary after an hour. While preparing the hypodermic, order three pints of warm soap-suds, to each pint of which may be added to advantage when convenient three ounces of glycerin. At the same time order some ice.

Take the patient's rectal temperature. If high (and it usually is) break the ice, already ordered, into pieces the size of a chestnut, place in a thick towel, and apply to the back of the head and neck, and administer tincture of aconite, three drops of the ten per cent. solution every hour, or one drop of the thirty per cent. solution, which I carry as being less bulky.

It will be necessary to watch the temperature

carefully, that the ice pack may be removed when the temperature drops to 100° F., replacing it if it again rises.

Undress the patient. Place in a good warm blanket. Using the soapsuds solution and a good fountain syringe (or other syringe of good capacity), wash out the lower bowel.

It is necessary to remember that there is occasionally in the rudimentary sigmoid, a long tenacious mass of fecal matter, bent upon itself to conform to the gut, which will not break up and come away with the enema. This is easily demonstrated through the thin walls of the little patient's abdomen, and may usually be readily broken up by the little finger passed into the rectum.

Administer calomel, one tenth grain every half hour for ten doses. Also prescribe one grain of resorcin, one half grain of zinc sulphocarbolate, one and one half grain of sodium salicylate, in a drachm of some digestive ferment solution, every three hours.

The next duty of the physician is to discover, if possible, the cause or causes of the convulsions, that precautions may be taken against recurrence. This he may be unable to do at the first call; but on the following day, under the above mentioned line of treatment, a thorough examination will be possible.

The great majority of infantile convulsions will be found to be due to digestive troubles affecting particularly the intestinal tract—and these intestinal troubles depend on a variety of causes. Disorders which might be deemed trivial assume added significance when we consider the undeveloped nervous system of babies and very young children. The purely "vegetative" nerve elements of all animals (the nervous system controlling the automatic functions of the body) are the earliest developed, and of necessity most function properly from the first, and as a result of this development the functions of the various organs are properly performed under normal conditions. Those functions of the nervous system which are necessary to control these processes under conditions somewhat abnormal are developed later, particularly the inhibitive functions. Organic processes are called into action more quickly, and act with greater violence as a result of this lack of control, this lack of inhibition.

Some infants and children are predisposed to convulsions from slight causes, internal and external, while others are free under all circumstances. Fundamentally the trouble is without doubt due to an irritability of the nervous system, a neurotic element which demands the physician's attention. The little patient should be examined for possibly beginning exanthemata; nose, throat, or ear disease; phimosis with retention of smegma; worms.

Bearing in mind the quick response to external influences in the very young, it may be necessary to give some advice to the parents, not only correcting dietetic indiscretions of these little patients and their manner of living, but often changing their entire environment. This last, however, is only exceptionally necessary.

The writer has never found it necessary to repeat his initial dose of morphine hypodermically; and mentions the internal administration of chloral.

bromides, and other medicines (with the exception of aconite and calomel), only to condemn them as uncertain and inefficient in the "convulsive" period of the trouble—and by the time they can be properly absorbed they are not needed.

Dr. Joseph Di Rocco, of New York, writes:

Before discussing the treatment of infantile convulsions, I cannot help enumerating the various causes that bring them on. One has to bear all these in mind, so that the treatment for the correction of the cause be afterward applied in the right direction. Convulsions may be due to these causes: 1. Predisposing; (a) the peculiar structure of the nervous system of young infants; (b) hereditary, especially on the mother's side; (c) rachitis. 2. Exciting; (a) symptomatic, as inflammation of the nerve centres or meninges; new growths; diseases of inner and middle ear; (b) reflex, as gastrointestinal disturbance; sensitive gums; worms; phimosis; (c) sympathetic, at onset or in course of an infection or inflammatory diseases, such as diphtheria, scarlet fever, measles, pneumonia.

Working on the basis that the convulsion is from a predisposing or symptomatic cause, I resort to sedatives only, such as chloral or bromides. For example, I inject into the rectum five grains of chloral with one drachm of water (for a child of one year). Repeat this in one hour if necessary. If this does not restore to the normal condition, I resort to morphine, by injection, one sixtieth grain for a child of one year. This should not be repeated before six hours. In extreme cases, when the convulsions are not controlled by any of the foregoing means, one may have to resort to inhalations of chloroform, but personally I never had any occasion for its use.

The majority of the infantile convulsions that one sees are due purely to reflex causes. Perhaps ninety per cent. of them are due to a gastrointestinal disturbance, from food that is not adapted to the child's digestive system, whether it be material from the table or improper milk formulæ. The whole matter narrows down to two simple words, i. e., faulty feeding. It is almost invariably the bottle fed baby that has convulsions. One must bear in mind, and this is the vital point, that the convulsive condition will never be relieved until the gastrointestinal tract is perfectly cleared of all foreign material. For the convulsion itself, I place the child in a tub of hot water (up to its knees) with enough mustard in the water so as not to be too annoying to the person handling the child. Apply cold to the head. Keep the child in the water until the convulsion has stopped and the child is quiet. When the child is restored to its normal quietness give a high rectal saline irrigation. If you know that the stomach contains some foreign food material, give syrup of ipecac in half drachm doses (a child of one year); repeat until vomiting is induced. As I said before, the condition will never be relieved until the tract is perfectly clear; I give castor oil, a good dose of it. This answers the purpose admirably; acts as a broom by sweeping everything before it. The following is also of the utmost importance. Be very careful with the feeding of the child after it has had a convulsion;

no food for twenty-four hours. At the end of that period begin with a very weak milk formula (young child), or barley water (one year or older).

With convulsions of sympathetic cause, at the beginning of a disease, the fit is usually of a mild and temporary nature, and the doctor is not disturbed. But if any treatment is instituted, the use of sedatives as stated above works well. The convulsions under this cause are of importance only if they come during the course of the disease. This puts me on the lookout for complications. With such convulsions the hot pack is indicated. Likewise stimulation is called for, preferably in the form of whiskey; very hot is the best. And when there is an irritable stomach, I give it per rectum.

As I have said before, fully ninety per cent. of infantile convulsions are due to a gastrointestinal disturbance, and these will continue to come at greater or less intervals, much to the annoyance of the mother, playing havoc with the peculiar structure of the nervous system of the child; until the gastrointestinal tract is relieved of all foreign food material and until the giving of food that is adapted to the child's digestive tract is regulated. The various causes of convulsion must be borne in mind, so that after the convulsion is relieved, the cause, whatever it may be, is corrected.

Dr. W. A. L. Styles, of Montreal, Canada, observes:

The rational treatment of infantile convulsions presupposes a knowledge of the etiological and pathological factors concerned in its production. Briefly considered, convulsions are either central or peripheral in origin; typical of central type are the acute exanthemata, cerebral abscess, etc., while exemplifying peripheral factors, are gastrointestinal disturbances, foreign body in nose or ear, etc.

Treatment will be discussed under two headings, attack and after treatment.

Attack: Immediately immerse child up to neck in a warm (100° to 105° F.) mustard bath for five to ten minutes, with ice cap or cold compress to head, followed up by emptying lower bowel with a glycerin enema, given at 70° F. if high temperature is present; add, by mouth, a full dose of calomel or castor oil. The warm bath is contraindicated in syncope or advanced pulmonary disease. The foregoing treatment will answer admirably in most mild cases.

Should convulsions recur, introduce per rectum one ounce of warm saline, containing chloral hydrate and sodium bromide; to an infant of three months, give two and one half grains of chloral, and three to five of bromide, while at twelve months three to five grains of chloral and five to ten of bromide are given; this to be repeated at hourly intervals for two or three doses. Ethyl carbamate one and one half grain, four times daily, at six months, often succeeds when the chloral bromide combination fails. Relief may only come when antipyrine (gr. ss. at six months) is given, with sodium bromide, four times daily. For the rapid control of convulsions, we have two dependable remedies in chloroform and morphine. Chloroform inhalation invariably affords immediate relief, though it may tend to depress a heart already embarrassed by toxemia, in which case ether may be substituted.

Should convulsions continue after withdrawal of chloroform, or despite foregoing treatment, morphine sulphate is to be resorted to hypodermically, gr. 1/48 to 1/24, the former amount for child of six months, the latter when twelve months old; may be repeated half hourly for two or three doses, as necessary.

After treatment is prophylactic and curative in character. After subsidence of the convulsion, we concern ourselves with the etiology of the case; peripheral factors are removed, and cerebral or circulatory disturbances, acute infections, etc., are treated in the usual manner.

Absolute rest in bed, with quiet surroundings, along with a light dietary, daily bowel elimination, and a three day chloral bromide, or antipyrine bromide, treatment to ward off recurrence of seizures.

Hyperpyrexia is to be treated along the usual hydrotherapeutic lines, being a prolific factor in inciting convulsions.

Possible secondary attacks are best guarded against by general tonic treatment—nutritious, digestible food and fresh outdoor air.

Dr. W. T. Parrott, of Kinston, N. C., states that—

Specific treatment depends upon the etiology. I employ then a basic treatment "applicable in all" cases, and later a treatment directed against the cause. When called to see a case of convulsions, one has very little time to work out the cause, hence one must be prepared—if possible—to employ measures to relieve the immediate symptoms until a diagnosis can be made and specific treatment inaugurated.

Regarding, then, what I am pleased to term a basic treatment, applicable to all during the paroxysm, I beg to submit the following plan:

A mustard bath, made by quickly stirring a tablespoonful of mustard in six gallons of water, is hurriedly prepared; in lieu of this, I sometimes use plain water, then place the child in the tub with hips and feet elevated and head somewhat lower; I believe the position does good, although if I fear cerebral hemorrhage I do not lower the head. This postural plan works well even without the bath. While the child is in the mustard bath, I am arranging for a high rectal enema, and after this is completed, I give a large dose of castor oil with a small amount of croton oil, provided there is no nausea and vomiting. If there is, which is often the case, I immediately go on broken doses of gray powder and the digestive agent from the gizzards of poultry. In the meantime, I order a mixture of sodium bromide and chloral hydrate and two ounces of mucilage of acacia per rectum. If this fails to control the spasms, I resort to chloroform inhalations and to morphine only *en dernier ressort*, in one thirtieth grain doses, but I have rarely been forced to do this.

During fourteen years of work with children, I have, with one or two exceptions, found this basic treatment thoroughly satisfactory. As soon as the convulsions have been controlled, I make an attempt to locate the cause and apply specific treatment. The exanthemata, urticaria, pertussis, uremia, phimoses, intestinal toxemia, rhachitis, hy-

perpyrexia, worms, birth trauma, acute nephritis, dentition (?), onset of acute intestinal infections, or epilepsy being the cause, I employ standard treatment for each condition.

In the south, I have found the malarial infections at the bottom of more cases of convulsions in children than any other cause and in these specific treatment is highly satisfactory. I invariably give the quinine hypodermically until four or six injections are given, three hours apart, varying the doses with the age of the child; continuing the use of quinine by mouth until every vestige of the malarial plasmodia has been eradicated—usually in not less than three weeks.

To resume: First, a basic treatment, applicable in every case of infantile convulsions and designed to *relieve* the immediate condition; second, specific treatment, designed to remove the cause and to be inaugurated as early as this can be determined.

Dr. Hartwig Kandt, of Brooklyn, New York, says:

When called to a case of infantile convulsions, my first effort is to stop the spasm, then to prevent recurrence by eliminating the cause. If placing the baby in hot water, with or without mustard, is ineffectual, I administer chloroform and give chloral, grs. v, in one ounce of water by rectum. If I am suspicious of some irritant in the stomach, I give lavage. Every patient gets a colonic irrigation of salt solution (about four drachms of salt to two quarts of warm water).

While giving first aid, I study my patient and inquire into the history so as to ascertain the cause of the convulsion. As a rule this will lead to a confession of overfeeding or improper food, and the next thing is invariably an order for a generous dose of calomel or castor oil. Even if there is no special reason for it, this treatment will do no harm. For after care I advise rest, warmth, and a little more prudence in regard to diet, allowing only the lightest food (barley or albumin water) for the next twenty-four hours. If there is evidence of rickets, the proper diet and medication must be prescribed.

Where I can eliminate the gastrointestinal tract as the causative factor, I look for reflex causes of irritation and try to remove them. The nervous instability normal to every infant is occasionally so much intensified that the presence of a foreign body in the nose or ear, a phimosis or paraphimosis, intestinal parasites in large numbers, dentition or diseased gums, or earache may bring on a paroxysm by reflex irritation. At times the thermometer will give a clue, high fever not infrequently causing convulsions in an infant. In this case I reduce the temperature by alcohol sponges and an icebag to the head to prevent recurrence.

As I said before, the great majority of all cases of convulsions originate in the gastrointestinal tract, but it must not be forgotten that sometimes we have to deal with much more difficult problems, as eclampsia, neonatorum the intoxications of lung, heart, and kidney disease, otitis media, epilepsy, meningitis in all its forms, and finally brain injury due to traumatism. Here the simple means mentioned will be of little or no value in arresting or preventing the convulsions.

Dr. A. Binderman, of New York, relates:

Immediately upon arriving, I take the child from the frantic mother or nurse, as the case may be, lay it upon a pillow with the head low and the buttocks raised, and place some object between its teeth to prevent it from biting the tongue. The handle of a toothbrush answers well this purpose.

While doing this, I take a brief history, asking the most composed member of the family the following questions: "How long is it since the child is in convulsions? Is it the first time to-day? Did it ever happen before? Did it vomit? Did it have a fall? What do you feed it on?"

At the same time I get the rest of the family busy, so as not to interfere with me by their presence, likewise to enable me prepare some of the things which may be necessary later on. One I order to prepare a hot bath, another to get a fountain syringe ready for a hot enema, and a third one to go to the drug store and get four ounces of mustard and a prescription, containing chloral hydrate and potassium bromide, three and ten grains respectively. This is the dose I give to a child of six months.

All this should take about three minutes, during which time the convulsions will, in the majority of cases, cease. If, however, they do not, I place the child into a hot mustard bath, at a temperature of about 110° F. While the patient is in the bath, I administer a hot enema. If these measures fail, I administer a few drops of chloroform by inhalation.

As soon as the convulsions are over, provided the child is awake, I make a thorough examination going over the lungs, abdomen, reflexes, throat, and pupils. If I find any abnormal physical signs in these regions, or a rise of temperature, I tell the parents that this may be the onset of an acute disease, and order the appropriate treatment. If the signs are negative, the after treatment will depend upon the condition of the patient.

If it is quiet or well asleep, I order fractional doses of calomel, to be given to the child after it wakes up, to be followed by a saline cathartic. If, on the other hand, the child is restless, I make use of the prescription mentioned. This is to be dissolved in a small quantity of warm water and injected high up into the rectum. The buttocks should be raised and held by hand, so as to prevent its escape. If necessary this treatment should be repeated after one hour.

If the child does not retain this medicinal enema, I add a few drops of tincture of opium. This same after treatment I apply if the convulsions have stopped spontaneously. If a hot bath is not feasible, as is frequently the case in poor houses, I substitute a hot pack made of a blanket wrung out of hot water to which a little mustard has been added.

(To be concluded.)

Therapeutical Notes.

Drum Membrane Anesthesia.—E. Terry Smith, in *Transactions of the American Otological Society*, 1912, states that he uses as an anesthetic in paracentesis for otitis media a mixture of the crystals of menthol, cocaine, and phenol. These are rubbed together and form an amber colored fluid

which, when applied to the drum, rendered the operation painless. Since he has been using this mixture the number of cases that go on to recovery with simply a serous discharge has been almost doubled.

Treatment of Exophthalmic Goitre.—S. Solis-Cohen, in the *American Journal of the Medical Sciences* for July, 1912, states that under medical treatment one may reasonably hope for the recovery of not less than seventy-five per cent. of patients exhibiting Graves's syndrome, and for permanency of the result in at least eighty per cent. of these. Rest, the most important measure of all, should include relief from worry or other mental disturbance, as well as from eye strain and other sources of reflex irritation. As in tuberculosis, it is best for the patient to remain in the open air continuously. In many cases Cohen has found a diet consisting largely of raw or underdone broiled or roast beef and hot water to be useful. One or two glasses of the hot water should be taken an hour before meals, and it should also be used between meals *ad libitum*. A minimum of sugars and starches, a sufficiency of green vegetables and fresh fruits, and milk and eggs, judiciously used, constitute the other essential features of the diet. In those patients who do not tolerate the usual large amount of beef, pains should be taken to ascertain the articles of food best suited.

A potent influence in controlling some of the symptoms is reeducation of the vasomotor taxis, by means of alternate hot and cold applications. After cooling the head and neck, the entire body should be sponged with water at 108° to 112° F. and this immediately followed by a "cold friction rub" with water at as low a temperature as can be borne.

In respect of drug medication, Cohen finds thymus gland in doses of 0.5 to 3 grammes daily, persisted in for months, frequently beneficial. The additional use, conjointly or alternately, of adrenal preparations, gives even better results. Intramuscular injections of a preparation of the posterior lobe of the pituitary will also often cause progressive improvement. Wherever the systolic blood pressure is below 100 mm. Hg, either a pituitary preparation or epinephrine should regularly be given, with or without the thymus. Thyroid gland has, paradoxically, been known to do good in some cases, but should be used with the utmost caution. Parathyroid extract, in doses of from 0.005 to 0.025 gramme of the desiccated commercial preparation, given thrice daily for limited and recurrent periods, is also useful in many cases, especially in controlling tremor and allied nervous symptoms; its effect seems to be enhanced by combination with a calcium salt.

Intestinal antiseptics appear to be useful auxiliaries to treatment. In addition, it is well to wash out the colon thoroughly with hot saline solution once or twice weekly, and to give occasionally a course of calomel and salts, or castor oil.

Treatment of Influenza.—Glenn I. Jones, in the *Journal of the American Medical Association* for October 5, 1912, maintains that the first step in the

treatment of this affection should be the removal of the immediate cause by destruction of the bacillus in its avenues of invasion. In the morning the nose and throat should be thoroughly cleansed with a spray of Dobell's solution or of one to 400 phenol solution at a temperature of 85° to 90° F. The nose and throat should then be swabbed with:

℞ Balsami peruviani, ...grs. x (0.6 gramme);
Ichthyolis, ...grs. v (0.3 gramme);
Glycerini, q. s. ad.....3ii (60 c. c.).
Misce.

In the evening, the spray of Dobell's or phenol solution should be repeated; creosote, two drachms (eight c. c.) in a quart of water, inhaled for one half hour; the nose and throat swabbed with epinephrine solution, and fifteen minutes later, the last procedure repeated with a ten per cent. solution of an organic silver preparation.

Treatment of Hepatic Colic.—Ramond, in *Nouveaux Remèdes* for September 8, 1912, is credited with the following formula for a local application in hepatic colic:

℞ Extracti opii, ... }
Extracti belladonnæ foliorum, ... } āā 2 grammes;
Extracti conii (U. S. P. '90), ... }
Extracti hyoscyami, ... }
Camphoræ, ...5 grammes.
M. ft. emplastrum.

Isolation in Psychoneuroses.—D. Pachantoni, in *Revue médicale de la Suisse romande* for July, 1912, observes that complete isolation, while a very valuable therapeutic measure in these conditions, is frequently both a hardship to the patient himself and a source of opposition on the part of his family. In some cases, indeed, absolute isolation may prove useless or even harmful. For these reasons the author advocates only partial isolation in psychoneuroses, adopting a plan similar to that of Déjerine at the Salpêtrière, Paris. Three or four patients are placed together in a spacious, well ventilated room. They must remain in bed, and are isolated from the exterior in that they are not allowed to receive letters or visitors; but they are able to see one another and to converse.

The results thus obtained were most satisfactory. The plan was resorted to whenever absolute isolation failed to overcome the patient's delirious state. Patients with hypochondriac ideas of long standing were also often placed together, and the results appeared sometimes better than those obtained by individual isolation. Each patient is able to observe, at a period when he is certain of the reality and seriousness of his own affliction, that those of his neighbors are but products of the imagination. By indirect persuasion he is thus assisted in getting rid of his own chimeric and baseless fears. Capricious, selfish patients, for years a scourge in their families, in partial isolation undergo a period of training in moderation, altruism, and sociability. On the whole, this form of isolation, employed with due circumspection, is often a useful measure. Where a mutual psychic influence is exerted among the several members of a group of patients, it is always oriented favorably, i. e., the less seriously affected patient influences the more seriously affected in a manner tending to promote recovery.

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STIMULATING REPARATIVE CELL GROWTH.

The researches for which Dr. Alexis Carrel was awarded the Nobel prize have in effect been studies of the life of the cell. Following up the work of Doctor Harrison, who grew cells of the nerve ganglions of the frog in a drop of blood plasma, Doctor Carrel and his associates have apparently demonstrated that life has its possibilities in the individual cell. Pieces of arteries have been removed from animals, kept for months, and successfully grafted on the arteries of other animals. As has already been pointed out in these columns, Doctor Carrel has found it possible to transplant organs such as the kidneys from one animal to another, though the organ thus transplanted eventually lost its functions. A still further step in the study of cellular life has been made by Doctor Carrel, who finds that the growth of the cell may be accelerated by introducing into the medium in which it lies certain tissue extracts.

Five years ago Doctor Carrel undertook a series of studies hoping to demonstrate the possibility of increasing the activity of cell formation so as to lessen the time required for the reparative process in superficial wounds. Finding it impossible to control the conditions in the living animal with sufficient accuracy he began a series of experiments

in vitro, the results of which are made public in *The Journal of Experimental Medicine* for January, 1913.

In these experiments small fragments of the heart tissue of the chicken were placed in a mixture of blood plasma, water, and extractive from various tissues. The cellular growth of these fragments was compared with the growth of similar fragments in plasma which contained no tissue extract. The tissue extracts were made from chick embryos from six to twenty days old and from the spleen, the kidney, and other organs of adult chickens and from specimens of Rous's chicken sarcoma. It was found that under proper conditions as to temperature, etc., the extracts caused the cells to grow from three times to forty times as rapidly as did the cells immersed in the plasma alone. The extract from embryos was found most active, although the extracts from the spleen and from the Rous sarcoma were nearly as efficient in activating cell growth. Similar studies were made with the dog and with the rabbit. Apparently the results of these experiments point the way toward the acceleration of the reparative processes in wounds. If the stimulation of the cell growth by the tissue extract proves as great in the animal as it has *in vitro*, superficial wounds could be healed in less than twenty-four hours and a broken leg in four or five days.

Unfortunately, however, it was observed that the stimulant effect of the tissue extract is specific, being confined to like animals. The extract from a dog's spleen, for instance, did not stimulate the growth of chicken or rabbit cells. The practical bearing of this observation is of grave importance, indicating that we cannot expect to obtain the best results in the stimulation of reparative growth in man unless we use extracts prepared from the tissues of human beings. It would seem reasonable to hope, however, that tissues from nearly allied animals might produce satisfactory results in stimulating cell growth. No reports are made of any studies along this line, but in view of the remarkable progress which has been made by Doctor Carrel and his associates, it is not too much to expect that probably our first practical result from these studies will be the discovery of some means of accelerating the reparative processes so as materially to cut down the time required for the healing of wounds.

THE PREVENTION OF PLAGUE.

Although the following doggerel verse occurred as an inconspicuous footnote in an article by W. Colby Rucker in the *Public Health Reports* for July 19, 1912, it was in reality the text for a very

scientific and complete account of the most approved methods for dealing with the plague:

First plague in rats,
And then in fleas,
Then plague in man
And quick decease.
No rats, no fleas,
No plague decease.

According to the author, the problem divided itself into two parts, plague eradication and plague prevention. Under the first heading comes the killing of rats and fleas. To get rid of the former the primary requisite is starvation. Not until edible refuse is properly disposed of, and food supplies designed for human consumption, as well as granaries and hay lofts are rendered rat proof, can we hope that the rats will take poison or be attracted by baits into traps. Foremost in importance in rendering buildings rat proof is concrete construction of foundations, basements, and floorings. This is especially desirable in houses, stables, and warehouses where food products are stored. Chicken houses and yards should also be protected in the same way. Having reduced the rodents to the desperation born of starvation, they are much more readily vanquished by actively aggressive weapons.

Among the chemical poisons, arsenious acid and phosphorus are the best. Strychnine is sure, but it is expensive, and because it is often distributed on small grain, is more dangerous to children, domestic animals, and birds. Beside the well known forms of rat traps already in common use, mention is made of two new methods which promise good results. The first is by suspending bait between two heavily charged overhead wires from which the insulation has been removed for a short distance. The hungry rat thus receives the current through his body, is rendered unconscious, and falls into a tub of water, where he is drowned. This method is particularly applicable to warehouses. For use in hotels and ships there has been patented a system of tunnels and traps with a registering device which indicates the number of rats in the trap, and after a sufficient number have been caught they are driven into a pit, where they are killed with gas.

The natural enemies of rats, the cats, dogs, and weasels, are useful when plague is not prevalent, but in the presence of an epidemic they may become a source of danger because of their known liability to contract the disease themselves.

Efforts to rid the community of rodents must be accompanied by measures to exterminate the fleas. These can be destroyed by sprinkling freshly chlorinated lime in the rat nests, whereas in houses, fumigation with sulphur dioxide and washing the

floors with a kerosene emulsion, together with great care in ordinary house cleaning methods are sufficient to keep them reduced to the minimum. As a pulicide, formaldehyde is worthless.

Having carried on an effective campaign against the rats and fleas, the further sanitary measures consist in a delineation of the infected zone. To get an accurate knowledge of the distribution and extent of the infection, careful inspection of the human dead from all causes should be made, likewise frequent examinations of the living who have come in contact with cases of plague both in rats and man. All dead rats should be examined, because they form an index to the extent and distribution of the epizootic. On account of their known susceptibility, guineapigs can be used as a plague barometer. Fleas love these animals, and if one is kept in the house it will quickly succumb to the disease, provided the fleas are infected. Thus in the event of the guineapig's sickness or death measures can be immediately taken to ascertain if it has succumbed to the plague, and in such event the premises can be subjected to the proper antiplague measures.

The methods of eradication of the disease naturally suggest the measures to be taken by the municipality to prevent its occurrence. These should consist in effective ordinances designed for the rat proofing of buildings, the proper disposal of garbage, and the sanitary regulation of food stores, stables, bakeries, and warehouses. Besides there should be an effective quarantine against rats. "Where ships go, there the plague will go"; therefore vessels coming from infected ports should be fumigated just prior to sailing. Here again sulphur dioxide is useful; it kills the rats as well as the fleas.

Finally, in rural districts the ground squirrels should be killed; they often suffer from the plague. True, they travel but short distances, and are almost a negligible factor in the direct conduction of the disease to man, but their "great function in the plague scheme," says Rucker, "is that of a rural reservoir from which from time to time the disease flows over to the suburban rat, thence to his city cousin, and thence to man."

PYORRHOEA ALVEOLARIS AND THE VACCINES.

The disease to which the symptomatic name of pyorrhœa alveolaris has long been given forms the subject of a valuable contribution to the *Boston Medical and Surgical Journal* for December 19 and 26, 1912, from the pen of Dr. Leon S. Medalia.

The value of the paper lies in the advice as to treatment of this resistant affection which the writer prefers to call chronic alveolar osteomyelitis, advice which seems likely for the first time to lead to definite and permanent remedial results. Doctor Medalia has treated 115 cases in all stages with a percentage of cures in the incipient stage of ninety-two per cent., in the moderately advanced stage of ninety-three per cent., in the far advanced stage of forty-three per cent. These results are of particular interest to our readers, not only on account of our repeated emphasis on the importance of the condition as a symptom of certain constitutional dyscrasiæ, but because the curative results were obtained by the use of vaccines, to which we have recently devoted a large amount of space. The coincidence is interesting, in view of the impartial discussion we have presented as to the relative merits of the stock heterogenous vaccines and the clinical autogenous, that the Boston writer uses a mixture of the two.

Local measures formed an important part of this new treatment, but these were along the old lines and have never by themselves produced results at all encouraging; they were carried out by the various dentists who sent the patients to Doctor Medalia and in many cases sent with them the statement that used alone they would be hopeless. We believe that no more striking testimony of the value of vaccine therapy could be adduced than the encouraging outcome in these cases of a disease which has hitherto resisted absolutely the most painstaking and ingenious oral surgery.

Among the author's conclusions are that the tooth sockets are enlarged medullary spaces, while the so called periodontal membrane is in reality a ligament which holds the tooth suspended in the alveolar cavity; mechanical causes are responsible for starting chronic alveolar osteomyelitis, while the pyogenic bacteria, particularly the pneumococcus in chains, are responsible for keeping it up; again, and this is where our repeated opinion is corroborated, a great many rheumatic diseases, so called, are directly related to the osteomyelitis, and vaccine treatment, together with the proper dietary regimen, cures or relieves the systemic disease as well as the local trouble.

The neglect of this foul and obvious condition has long been a reproach to diagnosticians. Here the dental surgeon's work can take its proper place in relation to the physician's as an inseparable section of general medicine, working toward a result of the highest importance to the health and satisfaction of the victim. The physician will no longer carelessly waive the patient over to the dentist, to the latter's despair, but labor with him to the great

comfort of the individual and the protection of the community against one of the most contagious and obstinate of pathological conditions.

TREATMENT OF CANCER BY SELENIUM.

In an editorial note printed on February 3, 1912, we made some reference to the experiments carried out in Germany with salts of selenium in the treatment of malignant tumors in mice. It will be recalled that these experiments attracted widespread attention in the medical profession. While the German scientists did not assert that they were the first to try selenium and tellurium preparations in the treatment of malignant growths, the reports published by them were, we believe, the first to appear which gave the results of actual experience in their use. It seems that the use of selenium dioxide for the treatment of cancer was proposed by Dr. Frederick Klein, of New York, as early as 1908, in a paper read by him before the New York section of the Society of Chemical Industry on November 20th of that year. In another column of this issue we print a paper by Dr. Felix von Oefele, of New York, who, it appears, was also among the first to propose selenium in the treatment of malignant tumors.

It would seem, therefore, that the theoretical considerations based on the similarity in action between arsenic and selenium had occurred to several independent investigators, and we have no doubt that even others beside those named have arrived at the same conclusion regarding the probable availability of the salts of selenium in this direction, though they may not have made any public declaration of their conclusions.

SLOW DEATH FROM LOCAL ASPHYXIA.

L. Ambard and L. Morel reported to the Paris Société de Biologie, according to *Presse médicale* for December 18, 1912, that in their opinion, beside the well known accidents of immediate general asphyxia, there were others less known connected with local asphyxia, which might be produced by the simple elastic ligation of a limb for example. In the rabbit the most marked symptom was progressive emaciation which caused death some seventy to eighty days later.

This phenomenon was well worth the attention of surgeons and anesthetists, averred the speakers, on account of the common practice of using elastic circular compression of the femoral artery in operations on the thigh. Anesthetists agreed that narcosis was not possible without a certain degree of asphyxia, and it would be of interest to ascertain, if possible, what proportion of delayed accidents after anesthesia was due to such asphyxia.

Medical Law.

X. THE PHYSICIAN AS WITNESS.

By the General Statutes of Florida, Section 3151, it is provided:

In all actions brought in the courts of this State to recover damages for personal injuries alleged to have been sustained, it shall be discretionary with the trial court, upon motion of the defendant, to require the injured party, if living, either before or at the time of the trial of the cause, to submit to such physical examination of his or her person as shall be reasonably sufficient to determine physical condition at the time of trial and the nature and extent of the alleged injuries. The physical examination provided shall be made by a physician to be named by the court in the presence of one or more physicians or attendants of the injured party, if the party so desires. The compensation of the examining physician shall be fixed by the court in each particular case, and shall be in the first instance paid by the party petitioning for such examination but shall be taxed up as a part of the costs of the case subject to the final disposition of the same.

In an action brought by Dartha Carter and her husband against the Florida East Coast Railway Company, to recover damages for personal injuries sustained by the wife, the defendant moved for an order requiring the plaintiff to submit to such a physical examination of her person as should be reasonably sufficient to determine her physical condition at the time of trial, and the nature and extent of her alleged injuries. The court granted the motion and, under the authority conferred by the statute, appointed a physician to make the examination.

On February 13, 1912, the physician appointed by the court reported that he was unable to determine the exact and true character of the physical conditions "presenting," due to the refusal of Dartha Carter herself to consent to an x ray examination being made; such x ray examination being in his opinion absolutely necessary. The defendant applied for a continuance of the case, which was granted on the ground of the refusal to submit to such examination. On May 21st following, the physician appointed by the court again reported that the plaintiff, Mrs. Carter, still refused to submit to such examination. On June 3rd the case was again called for trial, the plaintiffs answered ready, but defendant again moved for a continuation on the ground of plaintiff's continued refusal to submit to such examination. Plaintiffs stated that x ray photographs had been recently taken by an eminent surgeon of the highest professional attainments, of Jacksonville, which exhibited fairly Mrs. Carter's condition; that these photographs were ready to be offered in court, and had been offered to the physician appointed by the court; that Mrs. Carter had at no time refused to submit to an x ray examination by the physician appointed by the court, who had not offered to take such pictures, but instead had insisted that they be taken by a photographer personally objectionable to Mrs. Carter, and plaintiffs offered to prove that the photographer designated by the physician appointed by the court was an improper person to take the photographs. To this presentation the court replied in substance: "I have made an order for an examination by Dr. L.; that order must be complied with. If you have any objections to the person designated by Dr. L.

to take the pictures, you must make those objections to Dr. L. Until that order is complied with this case cannot be tried, and the motion for continuance is granted."

The plaintiffs therefore applied for mandamus against the judge, claiming that as he would not let them proceed they were remediless. The matter came before the Supreme Court in the case of *State ex rel. Carter et al. v. Call*, Judge, 59 Southern Rep., 789. The Supreme Court, after examining the statute above quoted determined the question of the right of the physician appointed by the court to designate another to make the photograph in the following words:

It seems to us that under the authority of this statute a trial judge may, in the exercise of a sound discretion, on the motion of the defendant, appoint a physician, for the purposes indicated in the statute; that such physician must himself make the physical examination which the statute authorizes; that, while he may use the x ray in his examination, he has no authority to take x ray photographs of the person of the party examined without his or her consent; and much less has he authority to appoint an outside photographer to use the x ray or to take such photographs. The reasons for confining the statute to its expressed terms it seems to us, are obvious, and conspicuously so in a case like the instant one.

In commenting further upon the action of the judge in refusing to permit the case to be tried while the reports of the physician designated by the court showed a refusal to submit to the examination, the court said:

From the pleadings before us it appears that the respondent judge, acting upon two reports, made to him by the physician appointed to examine the plaintiff, to the effect that she had refused to permit him to make an x ray examination of her person, continued the cause. This ruling was proper, if as a matter of fact the plaintiff did refuse to permit such physician to make such x ray examination; but the physician appointed by the court had no authority to make himself or to have a photograph made by another, without the consent of the plaintiff. The judge's refusal to permit the trial of the case until the plaintiff does permit such effectual examination to be made would continue to be proper.

After this decision was rendered a petition was made to the Supreme Court for a rehearing. By this petition it was made to appear that as it was impracticable for the physician appointed by the court under the statute to make a proper examination without the assistance of an expert radiologist to operate the x ray machine and make the plate under the instructions of the examining physician, the act should be so construed by the court as to allow the examining physician to have with him at the physical examination such assistances as he thinks necessary to a proper examination.

The court, after considering this question and quoting from the act above set forth, disposed of this contention in the following words:

Under this statutory authority, which is the sole guide in the matter, if the injured party objects to the presence of other persons than the appointed physician at the physical examination, and the appointed physician cannot make a proper physical examination of the injured party without other persons to assist him, it is within the discretion of the trial court to appoint another physician, who can make the examination as contemplated by the statute: but that court is without authority to compel the presence of another than the physician appointed by him.

Upon the trial of the case of *Willard v. St. Paul City Railway Co.*, reviewed in 133 Northwestern

Rep., 465, a physician called by plaintiff as a witness was asked this question:

Doctor, I ask you, you heard the testimony of the plaintiff, and from that testimony and from your medical examination that you made of this plaintiff, can you form an opinion as to what caused these conditions that you found?

This question was objected to by defendant as "improper and not based on the evidence, and there is no foundation laid for the question." The objection was overruled and the witness permitted to give his opinion. Upon reviewing the correctness of the ruling, the Supreme Court, speaking through Mr. Justice Start, said:

Technically the question was subject to the objection that it did not assume the truth of the testimony, but that objection was not made. The objection that "there is no foundation laid for the question" is too general to be of any avail, and falls within the rule, especially applicable to expert evidence, that an objection to the introduction of evidence must state the precise point of the objection, so definitely that the court may intelligently rule upon it, and the adverse party may, if the case will admit of it, remove the objection.

News Items.

Chemung County Medical Society.—This society held its annual meeting on the evening of December 27th and elected the following officers: President, Dr. William Brady, of Elmira; vice-president, Dr. R. B. Lynn; secretary, Dr. C. F. Abbott; treasurer, Dr. Herbert W. Fudge.

Kennebec Medical Association.—The annual meeting of the Kennebec County, Me., Medical Association was held recently, in Augusta, under the presidency of Dr. Donald B. Cragin, of Waterville. Officers were elected as follows: President, Dr. Sylvester J. Beach, of Augusta; vice-president, Dr. Wellington Johnson, of Augusta, for thirteen years secretary and treasurer of the association; secretary, Dr. Henry W. Miller, of Augusta; treasurer, Dr. George R. Campbell, of Augusta. A banquet followed the business meeting.

New York University Asks for Six Million Dollars.—In his second annual report to the council of New York University, Chancellor Elmer Ellsworth Brown has asked for \$6,000,000 for the immediate needs of the university. The largest individual item is for \$3,000,000 to be spent on the medical school, for its endowment and for the equipment of the university hospital. Chancellor Brown also asked for \$1,500,000 for buildings, including \$600,000 for the purchase and permanent endowment of a library.

Western Surgical Association.—At the twenty-second annual meeting of this association, which was held in Cincinnati, on December 20th and 21st, under the presidency of Dr. L. L. McArthur, of Chicago, the following officers were elected to serve for the year 1913: President, Dr. Jabez N. Jackson, of Kansas City, Mo.; vice-presidents, Dr. Joseph Rilus Eastman, of Indianapolis; and Dr. M. G. Seelig, of St. Louis; secretary-treasurer, Dr. Arthur T. Mann, of Minneapolis. This year's meeting will be held in St. Louis in December.

Society of Medical Jurisprudence.—The two hundred and fiftieth regular meeting of this society will be held on Monday evening, January 13th, in Du Bois Hall, New York Academy of Medicine. The programme arranged for the evening is as follows: 1. Consideration of communication from Arthur MacDonald, M. D., Washington, D. C., advocating support of Sutherland-Clayton bill in congress for the establishment of a laboratory for the study of the criminal, pauper, and defective classes, and urging similar legislation by State and local governments. 2. Consideration of communication from New York Association for Labor Legislation urging cooperation in the study, legislation, and administration of laws affecting diseases due to industrial occupations. 3. Report of the Committee on the Law of Insanity, by Charles A. Boston, Esq., chairman. 4. Annual reports of officers and trustees. 5. Inaugural address by the president-elect, Medical Expert Testimony, by Reynold Webb Wilcox, M. D., LL. D.

A Monument to Doctor Senn.—It is announced that Chicago physicians are planning to erect a monument to the late Dr. Nicholas Senn. It is reported that already about \$12,000 has been pledged.

A Reception to Lady Aberdeen.—The Tuberculosis Preventorium held a special meeting and reception on Thursday, January 9th, at the New York Academy of Medicine, in honor of the Countess of Aberdeen, who is making a short visit to America. Lady Aberdeen is the leader of the antituberculosis campaign in Ireland.

A New Surgical Building for the University of Pennsylvania.—Plans have been completed for a new surgical building for the University of Pennsylvania, to be erected at the southwest corner of Thirty-fourth and Spruce Streets. It will be seven stories in height and connect with the present Agnew pavilion. The estimated cost is \$200,000.

Associated Out Patient Clinics.—The out patient clinics of New York have organized under the name of the Associated Out Patient Clinics of the City of New York, with a temporary office at 17 West Forty-third Street. Constructive studies of the existing dispensary facilities have begun, and the New York Foundation, of which Mr. Alfred M. Heinsheimer is president, has contributed \$5,000 toward the organization work of the association. The officers are: President, George L. Rives; vice-presidents, Henry S. Van Duzer, Dr. Gorham Bacon, and Dr. John Winters Brannan; secretary and treasurer, Dr. S. S. Goldwater; executive committee, Dr. Le Roy Brown, Dr. Arthur F. Chace, Rev. George F. Clover, and Dr. John H. Huddleston; executive secretary, E. H. Lewinski-Corwin, Ph. D. The members of the new organization include thirty-one of the principal hospitals, clinics, and dispensaries of Manhattan, and it is expected that the association will soon spread to other boroughs.

Personal.—Dr. George Thomas Jackson has tendered his resignation as professor of dermatology in the College of Physicians and Surgeons, medical department of Columbia University.

Dr. Yamei Kin, head of the Pei-Yang Woman's Medical School and Hospital of Tien Tsin, China, arrived in New York on December 27th. While in America Doctor Kin will deliver a series of lectures on Chinese women and the Chinese Republic.

Dr. James C. Wilson has been elected president of the College of Physicians of Philadelphia, and Dr. Richard J. Harte, vice-president.

Dr. W. W. Smithson, of Jackson, Miss., has been appointed superintendent of the State Hospital for the Insane, succeeding Dr. Nola Stewart.

The Mary Putnam Jacobi Fellowship.—The Woman's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship of \$800 available for postgraduate study. It is open to any woman graduate of medicine. The amount of the endowment to date will permit of a biennial award, and upon the completion of the fund, this will be made annually. The fellowship will not be awarded by competitive examination, but upon proof of ability and promise of success in the chosen line of work. Applications for the year 1913-1914 must be in the hands of the committee on award by April 1, 1913, and must be accompanied by: Testimonials as to thoroughly good health; letters as to ability and character; a detailed account of educational qualifications; a statement of the work in which the applicant proposes to engage while holding the fellowship; examples, if any, of her work, in the form of articles, or accounts of investigations which she has carried out. The committee will decide upon the award by June 1, 1913, and the fellowship will be granted from October 1, 1913, to October 1, 1914. When possible it is considered desirable that the applicant should present herself in person to the committee. Two reports will be expected from the holder of the fellowship, one to be presented about the middle of the work and a detailed report upon its completion. As a rule, the fellowship will be awarded but once to an applicant; in case of unusual ability a reaward will be considered. All applications for this fellowship shall be forwarded to the committee on award.

EMILY LEWI, M. D., Chairman,
MARTHA WOLLSTEIN, M. D.
MATHILDA K. WALLIN, M. D.
HELEN BALDWIN, M. D.
EMILY D. BARRINGER, M. D.

Births and Marriages in New York During 1912.—According to a statement recently issued by the commissioner of health, the number of births reported in the city of New York during the year 1912 was 135,625, an increase of 1,083 compared with the returns for the year 1911, but while the returns show an increase in the absolute numbers, still the birth rate for the year, 26.22 in a thousand of population, is the lowest rate since the year 1906. On the other hand, the number of marriages reported was 52,391 with a rate of 10.13, this being the highest marriage rate in five years. The number of stillbirths reported was 6,617, a decrease of 1,379 compared with the decennial averages.

Infant Welfare in Great Britain.—As a result of a public meeting called last July by Mr. John Burns, the labor member of the House of Parliament, an organization has been formed under the title of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy, with offices at 4 Tavistock Square, London, W. C. The association represents an alliance between the National Conference on Infant Mortality, the National League for Physical Education and Improvement and its department, the Association for Infant Consultations and Schools for Mothers, and the Women's National and Health Association of Ireland. Mr. John Burns is the president, Sir Thomas Barlow, chairman of the executive committee, and Sir Lauder Brunton is one of the vice-chairmen. The King and Queen of Great Britain have lent their patronage to the association. A postgraduate course on the feeding and care of infants will be given in London by the association and an English speaking conference on infant mortality is being arranged for August 4th and 5th immediately prior to the meeting of the International Medical Congress.

Fourth International Congress for Physiotherapy.—This congress will be held in Berlin, March 26th to 30th, under the patronage of Prince Albert Wilhelm of Prussia. Professor His and Professor Brieger, of Berlin, are presidents of the congress. Doctor Immelmann, also of Berlin, is secretary general, and Doctor Fleischmann and Dr. Otto Strauss are secretaries. The German propaganda committee comprises distinguished investigators engaged in the particular branches of science in question. The members of the American committee will be announced later. The work of the congress has been divided into four parts as follows: Part I. Hydrotherapy, thalassotherapy, balneotherapy, and climatotherapy. Part II. Electrotherapy and radiotherapy. Part III. Kinesitherapy. Part IV. Diathetics. A provisional programme has been arranged which includes many entertainments for the visitors. American physicians who propose to attend the congress or who desire to contribute papers, should communicate promptly with the chairman of the American Members of the Permanent Committee, Dr. G. Betton Massey, 903 Professional Building, Philadelphia.

Physicians Wanted in the Indian Service.—The United States Civil Service Commission announces that an examination will be held on February 5, 1913, for men only, at various places throughout the United States, from which to secure a list of eligible persons to fill a vacancy in the Indian Service at each of the following places: Navajo Agency (Tohatchi Boarding School), \$1,000 per annum; Cheyenne River Agency, South Dakota, \$1,000 per annum; Santee Agency, Nebraska, \$1,000 per annum; Western Navajo Agency, Arizona, \$1,200 per annum. Applicants must be graduates of recognized medical schools. Students who are members of the graduating class of any recognized medical school will be admitted to examination, but their names will not be entered upon the eligible register until they furnish a certificate from the dean of the college showing that they have been graduated. Statements as to training, experience, and fitness are accepted subject to verification. Each applicant for a position in the Indian Service is required to be in good health, and must attach to his application a statement concerning the number in his family and the number that will require accommodations at the Indian school or agency in case he receives appointment. Age, twenty-one years or over on the date of the examination, but persons who are more than forty years of age on that date will not be certified for filling vacancies that may occur in the Public Health Service. Persons who meet the requirements and desire to take this examination should at once apply to the United States Civil Service Commission, Washington, D. C., for Form 1312.

Elmira Academy of Medicine.—The annual meeting of this organization was held on the evening of December 4th, and the following officers were elected: President, Dr. A. Mark; vice-president, Dr. John A. Bennett; secretary, Dr. Charles Haase; treasurer, Dr. C. G. R. Jennings; trustees, Dr. John C. Fisher, Dr. A. W. Booth; censors, Dr. E. T. Bush, Dr. A. J. Westlake, and Dr. R. B. Howland. The society elected Dr. Herman R. Ainsworth, of Addison, an honorary member. The principal features of the programme were the address of the retiring president, Dr. H. W. Fudge, and a paper on Asexualization by Dr. F. L. Christian, of the State Reformatory.

State Tuberculosis Sanatorium Urged by the Illinois Board of Health.—In its annual report, issued on January 3d, the Illinois State Board of Health again made a plea for the establishment of a State sanatorium for tuberculosis, for the purpose of caring for those consumptives who are unable to care for themselves, and to protect the public against the ravages of a disease which causes between eight and ten thousand deaths in the State every year. The report showed that for the past twelve years the State Board of Health has annually recommended the establishment of such an institution, and that an investigation into the subject was made by the board in 1900. The report further showed that the forty-fourth general assembly in 1905 passed a bill creating the institution desired, but as the appropriation was insignificant, the bill was vetoed by Governor Dineen. The forty-seventh general assembly manifested its approval of the proposition on May 16, 1911, when the senate by unanimous vote passed a bill for an act to provide for the location, erection, organization, and management of a State sanatorium for persons afflicted with tuberculosis. Governor Dineen recommended the creation of a State sanatorium in his message to the forty-seventh general assembly, and it is understood that he will act favorably on the recommendation of the State board of health in his message to the forty-eighth general assembly on January 13th.

Examination for Medical Interne, Government Hospital for the Insane.—The United States Civil Service Commission announces an open competitive examination for both men and women, on January 22, 1913, at various places throughout the United States, from which to secure a list of eligible persons to fill the position of medical interne in the Government Hospital for the Insane, Washington, D. C., and other vacancies as they may occur in positions requiring similar qualifications. The positions are tenable for one year, and pay \$50 a month, with maintenance. At the end of six months, however, during which time a postgraduate course in mental and neurological diagnostic methods, etc., is given, an examination is held, and promotions to the next grade, assistant physician, at \$75 a month and maintenance, are made. Beyond this there is regular advancement for men whose services are satisfactory. The Government Hospital for the Insane has over 2,900 patients and about 750 employees to care for. In addition to the general medical practice offered, the scientific opportunities are excellent and the clinical opportunities in neurology and psychiatry are unsurpassed. As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the Hospital Service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination. Graduation from a reputable medical college is a prerequisite for consideration for this position. Applicants must not have been graduated previous to the year 1910 unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation, which fact must be specifically shown in the application. Both men and women will be admitted to this examination, although there are no vacancies for women at present. Applicants must be unmarried. Age, twenty years or over on the date of the examination. This examination is open to all persons who are citizens of or owe allegiance to the United States and who meet the requirements. Persons who meet the requirements and desire this examination should apply at once to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place where examinations will be held, for Form 1312. No application will be accepted unless properly executed and filed with the commission at Washington.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

November 1, 1912.

Salt Solution and Water in Nourishment.—Strauss found that the greater part of the salts are excreted by the kidneys, sweat and tear glands in varying amounts, depending upon the ingestion. Edema due to primary nephretic sodium chloride retention is relieved by diminishing the salt ingestion. In heart diseases and uremic conditions a decreased salt ingestion has been followed by varying results. Again, the procedure is excellent for lessening polyuria in diabetes insipidus. Water retention in the body is favored by carbohydrate diet. Withdrawal of fluid produces a loss of weight which in dogs amounts to ten per cent.; in pigeons, twenty-two per cent. It does not increase metabolism, but causes an increased proteid dissolution.

Therapy of Arteriosclerosis.—Strubell says that in treatment of arteriosclerosis, which is a chronic thickening of the intima, two procedures are possible, prophylactic and symptomatic. In the first are included physical exercise, regulation of the diet, attention to luetic changes and kidney disease, regulation of, but not total abstinence from alcohol and tobacco, combating nervous vascular cramps, which must be considered as the warning signals of so called pseudoangiosclerosis, Scotch douches and simple warm body baths. Under symptomatic treatment, the author includes iodine in organic preparation or sodium iodide in gelodurat capsules; in heart disturbances strophanthine, and titrated digitalis best given intravenously, sojourns at Marienbad, and massage. Yohimbin, often recommended, has not proved satisfactory, because it has no effect upon the bloodvessels of the splanchnic area where an effect is most to be desired, while in the brain it produces an increased blood supply in the dilated vessels, a result which is most unwelcome.

Articular Rheumatism.—Junghaus has shown that articular rheumatism can be healed by application of local warmth, Bier's hyperemia, and ichthyol bandages. Menzer treated several cases with streptococcus serum. In many cases where the salicylates failed in their action, or were not well borne, collargol in the form of an intravenous injection, two c. c. of a five per cent. solution or an enema of fifty c. c. of a five per cent. solution, gave excellent results. In giving the intravenous injection the heart must be normal, as there is a sudden rise of temperature to 40° C.; the injection per rectum is not followed by this rise in temperature, and the results are just about the same.

Tuberculosis in the Extremities.—Böcher illustrates his article by six x ray pictures showing tuberculous foci in the extremities. Beside the general treatment for tuberculosis, which in surgical cases has great value, the operative removal of all circumscribed tuberculous areas is indicated where the infection may spread to a nearby articulation from a diaphysis foci and where the operation itself does not threaten to involve the joint. The Röntgen rays will usually disclose whether or not the joint is already involved.

Bacterial Findings in Psoriasis.—Menzer found in fresh psoriasis areas near the borders in the upper cuticle layers, cocci groups three times, Munche's granules once, and acidfast bacilli once. A general and local reaction was produced when treating by streptococci vaccines, or tuberculin. He found that psoriasis patients always suffer from some kind of a constitutional disease.

Treatment of Epithelioma with Copper Salts.—A. Strauss reports two cases of genuine epithelioma and a secondary skin cancer following lupus, which were reduced to scar tissue by the use of an ointment consisting of alcohol and a combination of copper oxide and lecithin.

November 14, 1912.

Combination Therapy in Pernicious Anemia.—Brieger reports three cases of pernicious anemia which were much improved by the internal administration of arsenic and pancreatin. The general symptoms were radically improved and the blood picture, including the erythrocytes, soon approximated the normal. However, the effects were not permanent.

The Electrocardiogram.—Hering explains why there can be no normal electrocardiogram, since in man only indirect transmission is possible. Of the three varying factors, position of the heart, stimulating areas of the heart, and the indirect transmission, only the latter can be controlled, and this accounts for the great uncertainty in judging the form of the electrocardiogram taken, as it is, indirectly. It has therefore a minor clinical significance. The electrocardiogram of each person, taken under the same conditions, is somewhat different. There can be no normal individual electrocardiogram. A series of factors not yet explained and not completely under our control compel us to interpret the electrocardiogram with the utmost conservatism.

Serodiagnosis of Pregnancy.—Abderhalden, continuing his experiments, says that serum of the pregnant woman contains ferments which enables it to split off placental proteid and placental pepsone; the serodiagnostic process of dialysis, described in detail, gives a positive result even fourteen days after delivery. It proves conclusively the presence of placental contents in the blood, and the introduction of placental material into the blood stream of the person to be examined, if that person was a male, for instance, might give rise to a deceptive conclusion. Observations point to the fact that placentas of different species of animals are biologically identical or are closely related. The methods described can be used in many other problems in the region of biology.

Leucocytic Inclusions in Scarlet Fever.—Kretschmet concludes: 1. Döhle's leucocytic enclosures are found in all freshly examined cases of scarlet fever. 2. The presence of these leucocytic enclosures in other diseases is rare. In diphtheria and septic processes they are of more frequent occurrence. 3. Since the diseases in which the enclosures are present can easily be differentiated from scarlet fever, the examination of the blood in this disease is of great value in making an early diagnosis. 4. The enclosures are not found in all cases of scarlet fever and are not specific. They

are probably reactionary bodies of the leucocytes against the toxic products of the bacteria.

Salvarsan in Plague.—Aumann, after injecting 0.3 gramme salvarsan intravenously, increased the agglutinin of the serum to five times the original amount. No deadening effect upon the best bacilli themselves was produced.

Stomach Motility in Duodenal Ulcer.—Kreuzfuchs agrees with Moynihan that the clinical symptoms of hyperchlorhydria depend upon the presence of a duodenal ulcer. The typical finding of the Röntgen rays is the rapid emptying of the stomach after a bismuth meal.

Spread of Diphtheria and Lepa by Feces.—Delano asserts that the bacilli of diphtheria and lepra are not only excreted in more or less greater amounts through the kidneys (Conradi and Bierast), but also in the feces. In combating this disease, therefore, special attention must be given to the disinfection of the excreta.

November 28, 1912.

New Inhalation System.—Mayerhofer advocates a new inhalation method consisting of dry and finely divided sodium chloride vapor, the penetrating action of which reaches the finer tubes and the lung parenchyma. This method was tested in eighty cases. Three factors enter into the action, warm dry air, the pharmacological action of the sodium chloride in substance, which penetrates the passages as far as the respiratory air, and a particular action of the smallest sodium chloride crystals which produce a most intensive osmotic action on very small circumscribed areas of the respiratory mucous membrane. Indications for its use lie in diseased conditions of the respiratory organs accompanied by increased secretion, especially by secretory congestion, and in laryngeal tuberculosis. Contraindications are rapidly progressing tuberculous processes, a tendency to pulmonary hemorrhage, and acute pleuritic exudates. Very good results have been obtained in acute bronchial processes, chronic bronchial processes with or without emphysema and asthma, secondary catarrhs in chronic tuberculous lesions with tendency to hemoptysis, conditions associated with bronchiectasis, and in laryngeal tuberculosis.

Typhoid Infection in Rabbits.—Hailer and Ungermann observed, that by direct injection of typhoid bacilli into the gallbladder of rabbits the bladder became the habitat of these bacilli for at least thirty days, and in many cases they were excreted into the intestine and mingled with the feces. In intravenous injections, on the other hand, no lasting infection of the gallbladder was elicited. Vaccination into the liver and appendix did not produce a lasting infection of the gallbladder. The virus injected into one kidney produced an infection of this organ spread out over a long period of time. The authors are undertaking experiments on human beings dealing with the growth of bacteria in the gallbladder after the formation of artificial concretions.

JAHRBUCH FÜR KINDERHEILKUNDE.

November, 1912.

Scurvy in Children.—C. Hart says, although the etiology of scurvy is unknown, there is no disease that responds more rapidly to correct treatment than this condition. He was able to cause

scurvy in monkeys by feeding them condensed milk. The monkeys had hemorrhages of the gums, their extremities became painful to the touch, and hemorrhagic swellings appeared in various bones, together with fractures. Blood appeared in the stools, but never in the urine. Post mortem the typical lesions of scurvy were found, such as hemorrhages of various organs, muscle degeneration, anemia. Enormous subperiosteal hemorrhages were found in the bones of the skull and the long bones. The hemorrhages usually appeared in the region of the epiphyses, but at times the diaphyses were also involved, but not to such a marked degree.

Duodenal Ulcer.—H. Flesch states that gastric ulcer is a very rare condition in infants and children. Of much more common occurrence are duodenal ulcers. During the past few years duodenal ulcers have been reported by Helmholtz in cases of decomposition (atrophy) in infants. Entz has also collected a few cases of duodenal ulcers in infants. Flesch reports a case of duodenal ulcer in an atrophic infant, three months old; autopsy findings and a picture of the ulcer are given. In this case the temperature, a few hours before death, was subnormal, while the pulse was very rapid; this combination, a rapid pulse with subnormal temperature in an atrophic infant, points to collapse, and in this case the collapse was due to hemorrhage from the duodenal ulcer (the stools became bloody under observation). The diagnosis of duodenal ulcer was made before death. This is the first authentic case that has been reported as having been diagnosed ante mortem, according to Flesch.

Henoch's Purpura.—A. Gura reports two cases of Henoch's purpura, in one of which there was an intussusception, and calls attention to the fact that there may be a combination of purpura and intussusception, and that the intussusception may be due to intestinal hemorrhages.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

November 26, 1912.

Etiology and Treatment of Fracture of Patella.—Le Dentu reports a case of spontaneous patella fracture occurring in a tabetic, discusses the few cases of this kind already recorded, and points out the fact that such a fracture may be the first and sole symptom of tabes in its incipency. The almost complete absence of pain after the fracture and during manipulation of the parts is a significant feature, which should draw the attention to the possibility of disease of the spinal cord. In view of the imperfect healing of bony tissue, frequently observed in tabes, as well as the well known unusually great tendency to recurrence of patella fractures in general, the bone being covered with periosteum only on one side, the author advocates the employment, in the presence of either simple or tabetic osteoporosis of the patella, of a more secure method of wiring the bone than those hitherto followed. It consists in passing two strands of silver, platinum, or aluminum bronze wire through a single channel made vertically in the median line of both fragments of the bone, and forming with the ends of the wires two loops which are closed, respectively, by twisting on the outer and inner aspects of the bone. In the author's case of tabetic patella fracture, in which the tissue of the bone was so

rarefied as to show only a faint outline in radiograms, good healing took place after this procedure. Le Dentu classifies spontaneous fractures in general into those due to local causes, such as osteomyelitis, neoplasms, and syphilis; those consisting of dystrophic changes depending upon disease of the nervous system, central or peripheral; those due to a diathesis, infection, or special physiological state, such as pregnancy; and those due to a particular fragility of the bones, as in senility and osteopsathyrosis.

LYON MÉDICAL.

November 24, 1912.

Pelvic Cellulitis with Septichemia after Wertheim's Operation.—Violet points out the fact that, besides cellulitis appearing in the second week after pelvic operations, there may occur an early septicemic form of cellulitis associated with alarming symptoms hitherto frequently mistaken for involvement of the peritoneum. There is present high fever, which may reach or even exceed 105° F., a pulse of 150, and circulatory disturbance so marked as to lead to coldness of the extremities. The absence of abdominal rigidity, respiratory enfeeblement, vomiting, and obstructive phenomena, however, permits of distinguishing the condition from peritonitis. On the second day, moreover, the temperature generally falls several degrees, and marked general improvement is manifest. Occasionally a chronic cellulitis may follow, with almost periodic exacerbations, which are finally lost after several months. A possible complication is phlebitis, from which, in turn, embolism, sometimes periodic, may originate. The prognosis is far more favorable than in peritonitis, but the alarming nature of the condition leads the author to urge that even greater attention be paid to the avoidance of infection of the pelvic cellular tissues during operations than has hitherto been the case.

PARIS MÉDICAL.

December 14, 1912.

Conjugal Aortitis.—E. Hirtz has always considered chronic aortitis to be a syphilitic manifestation and his recent studies have confirmed this opinion. He has met with several cases of undoubted conjugal aortitis and reports five of these. In view of the delicacy of the situation, he usually prescribes the blue pill of the *Codex*, which affords efficacious treatment without attracting the attention either of the possibly innocent patients or of their neighbors. The pill is composed of: Mercury, five grammes; honey, four grammes; sugar, two grammes; powdered red roses, four grammes; make into 100 pills.

PRESSE MÉDICALE.

November 30, 1912.

Pathogenesis of Paroxysmal Hemoglobinuria.—A. Gilbert, E. Chabrol, and H. Bénard, reviewing the various observed facts capable of furnishing a sound explanation of the cause of idiopathic paroxysmal hemoglobinuria, consider it probable that splenic, hepatic, and renal factors operate simultaneously in its production. The red corpuscles are rendered more fragile by the hemolysins originating in the spleen, and in their passage through the kidneys undergo further changes which termi-

nate in the liberation of their hemoglobin. The participation of the kidneys in the process is indicated by the accompanying albuminuria and cylindruria observed in many cases.

Diagnostic and Prognostic Significance of Gallbladder Pain in Typhoid Fever.—A. D. Radulesco and C. N. Atanassin describe a new sign in typhoid fever as follows: With the patient lying on his back and breathing deeply, the examiner pushes forward the liver by inserting his left hand between the right iliac crest and costal border, and with the right exerts gentle, continued, deep, and upward directed pressure over the gallbladder. Where the sign is positive and the patient conscious, a more or less severe pain is complained of, while if he is unconscious, defensive muscular rigidity in the right hypochondrium, together with a facial expression denoting pain, are observed. The sign was found positive in every one of a series of forty-seven cases of beginning typhoid fever, and occurs earlier in the disease than all other signs hitherto described. It is almost always present at the height of the affection, and always disappears during convalescence. It was also found positive in cases of failure of cardiac compensation, in right sided pneumonia and pleurisy, and in puerperal sepsis, but in these cases the pain caused is due to abnormal sensibility in the entire liver instead of in the gallbladder area alone. Disappearance of the sign in typhoid fever always indicates that recovery is about to take place; where it persists, a relapse is to be feared. Where it returns after having already disappeared, a relapse may be unhesitatingly predicted, even though there is as yet no clinical indications of it.

SEMAINE MÉDICALE.

December 4, 1912.

Argyll Robertson Pupil in Nonsyphilitic Affections.—Félix Rose points out that in addition to its presence in parasyphilitic or actual syphilitic conditions, this symptom is undoubtedly observed in occasional cases of chronic alcoholism, diabetes, cerebrospinal meningitis, tumors in the region of the crus, the interstitial hypertrophic neuritis of Déjerine and Sottas, disseminated sclerosis, syringomyelia, and of certain mental diseases other than parasyphilitic, such as mania, alcoholic dementias, and dementia præcox. Such occurrences tend to show that the situation of the lesion giving rise to the sign is not always the same. In future pathological researches on this question, the cervicomedullary and crural regions, as well as the oculomotor nerve and the ophthalmic ganglion with its efferent nerves, will have to be carefully examined.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

November, 1912.

Fractures of Lower Extremity of Radius in Childhood.—Petroff presents a study of fourteen cases in children less than sixteen years of age. The signs of the fracture are, perhaps, not quite as typical as in adults, but are sufficiently constant to warrant the paying of special attention to this type of fracture. In but one of the author's cases did the plane of separation pass through the epiphyseal line. The prognosis is always good in these cases; all the children observed showed com-

plete functional recovery. No plaster cast should be used, splints being uniformly sufficient.

General Paralysis in Childhood.—F. Naville reports two cases of this kind. In one, a girl, the first symptoms appeared at the age of seven, and death took place at thirteen; in the other, a boy, the onset was at six and death at sixteen years. The statement of Hirschl and others that children attacked by general paralysis were weaklings both in mind and body since birth was invalidated by at least the first of the author's cases, this child having shown at seven years a high degree of intelligence and physical activity. Both patients showed a normal gain in weight and stature until the terminal period of cachexia, in spite of the intensity of the nervous manifestations. The assertion that the distressing subjective symptoms of paresis in adults, viz., headache, anxiety, melancholia, etc., are always spared juvenile paralytics, was shown to be erroneous in the first case, in which such symptoms were prominent. Confirmation of the condition present in the author's patients was afforded by the post mortem findings.

ROUSSKY VRATCH.

October 13, 1912.

The Internal Secretion of the Sexual Glands.—K. I. Korovitsky points out the influence of the sexual glands, the testicle and ovary, not alone on the primary and secondary sexual characteristics of the individual, but the general organism. This is brought about, not through the nerve connections, but by the hormones which are secreted by the sexual glands and infused into the blood.

Bacteria in Writing Inks.—E. O. Manoyloff investigated thirty-one brands of ink. Of these, twenty-one samples were purchased in shops and ten were in use by pupils in schools. Four samples were found free from bacteria; five contained different cocci, and twenty-two contained moulds. The samples of ink were also tested on animals, with the result that twenty-seven rabbits died in from ten days to six months with symptoms of marasmus. Of the thirty guineapigs inoculated, seventeen died from septicemia and marasmus in from one week to two months and a half. The majority of inks contain moulds and in certain cases a prick with a pen that has been in use is not without danger.

Chronic Alcoholism.—R. T. Tuvim presents an exhaustive discussion of alcoholic intoxication and gives his treatment which consists principally in the administration of large doses of atropine. This drug, he avers, produces an aversion to alcohol and may be administered surreptitiously.

October 20, 1912.

The Prophylaxis of Eclampsia.—V. V. Stroganoff proposes the following method of prevention treatment of eclampsia: 1. The removal, or reduction to a minimum of outside irritants (undue handling, noise, light, pain, such as may be caused by hypodermic needle or catheterization). 2. Lowering nervous irritability by the systematic administration of morphine, chloral hydrate, and chloroform. 3. Facilitating delivery, but without force. 4. Maintaining the body functions, respiration, cardiac action, the condition of the bloodvessels, action of

the kidneys and skin, in a state of highest efficiency. He regards chloral hydrate as a physiological antidote to the toxins of eclampsia.

Metabolism in Thyroidectomized Animals.—A. I. Ushenko found that following thyroidectomy the percentage relation of phosphorus to nitrogen in the urine is first increased and then diminished. Urea is diminished. Ammonia is first diminished, then increased, and again diminished before death. The amidoacids and purin bodies are increased, while creatinin is diminished. In other words, the metabolism of the tissues containing phosphorus and nitrogen is acutely disturbed, the synthetic processes being mostly affected.

The Action of Pituitrin.—M. S. Malinovsky investigated the effect of pituitrin in fifty cases of labor, using a special apparatus to record the uterine contractions. He found that the labor pains are increased, the intrauterine pressure during the pains is increased, while the duration of the pains is lessened. The pauses between pains are very much diminished. The character of the labor does not differ from the normal. In almost every case the so called *Sturmwehen* were observed. These resemble tetanic contractions, lasting about eleven minutes, but no deleterious effects were noted on either mother or child. The best effect of pituitrin is during expulsion and after the os is thoroughly dilated. When employed before dilatation is complete, or in rigidity of the os, prolonged tetanoid contractions of the uterus may result. The only contraindications to its use are diseases of the heart and kidneys.

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND
OTOLOGY.

November, 1912.

Double Sphenoidal Sinus Suppuration.—P. Watson-Williams suggests the removal of the posterior half inch of the upper part of the bony septum, corresponding to the sphenoidal sinus, together with the sphenoidal sinus septum, in cases where both sinuses are involved, in order to insure a permanent, free opening and satisfactory drainage.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

November, 1912.

Experimental Facts Concerning Kalaazar.—R. Row previously pointed out the possibility of growing *Leishmania Donovanii* of Indian kalaazar in successive cultures on certain special media. He now reports that by rubbing the virus in the form of cultures from a human source into the skin, previously scarified, of a monkey—*Macacus sinicus*—he has produced a cutaneous lesion in the animal after an incubation period of about nine weeks. By subcutaneous injection a subcutaneous lesion was produced, after an incubation period of five months. The occurrence of a general infection from these nodules has not yet been determined, but the bearing of the lesions on the possible results of a cutaneous infection by biting insects, which might act as transmitters, is of interest.

Treatment of Liver Abscess of Amebic Origin.—L. G. Fink describes an alternative method of treatment for cases where aspirating apparatus are

not available, as sometimes happens in outpost hospitals. In the case in which it was tried, with excellent results, four successive operations for the evacuation of pus were performed. In each instance the abscess was first emptied by means of a large trocar and cannula, and the cavity then irrigated with saline solution, to which had been added, on the last two occasions, a drachm of tincture of iodine to the pint. Four ounces of a ten grain to the ounce solution of quinine bihydrochloride were injected after each operation, and the opening in the skin and deeper tissues closed by a single stitch. Powdered ipecacuanha was given by mouth in thirty grain doses at first, and in smaller quantities toward the end. The patient was discharged cured on the forty-second day, and there has been no recurrence. The procedure described can be done under local anesthesia. Fink states also that emetine hydrochloride should now be on hand in every dispensary, both for treatment of acute and chronic amebic dysentery and for use in amebic hepatitis and liver abscess.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
December 28, 1912.

Diagnostic Pitfalls Identified during a Study of Three Thousand Autopsies.—R. C. Cabot made a comparison of the clinical and post mortem findings and showed that certain diagnostic mistakes occurred frequently in the diagnosis of diseases of the respiratory, circulatory, and gastrointestinal systems. Three points were brought out: First, that there was a great number of "classic" time honored mistakes, familiar to all physicians. Some could be avoided, others were inevitable, but all should be borne in mind; second, that some common diseases were relatively inaccessible to diagnosis, in spite of all care; third, that beside the "classic" and well known pitfalls, there were some less known which needed the more to be marked "dangerous." The following figures show the percentages of correct diagnoses as proved by autopsy: Diabetes mellitus, 95; pernicious anemia and leucemia, 95; typhoid fever, 92; aortic regurgitation, 84; cancer of colon, 74; lobar pneumonia, 74; chronic glomerulonephritis, 74; cerebral tumor, 72.8; tuberculous meningitis, 72; gastric cancer, 72; mitral stenosis, 69; cerebral hemorrhage, 67; septic meningitis, 64; aortic stenosis, 61; active phthisis, 59; miliary tuberculosis, 52; chronic interstitial nephritis, 50; thoracic aneurysm, 50; hepatic cirrhosis, 39; acute endocarditis, 39; peptic ulcer, 36; suppurative nephritis, 35; renal tuberculosis, 33.3; bronchopneumonia, 33; vertebral tuberculosis, 23; chronic myocarditis, 22; hepatic abscess, 20; acute pericarditis, 20; acute nephritis, as a terminal disease, 16. These figures represent the success and failure ratio of certain methods rather than of certain men. They are likewise an exemplar of the methods of an average up to date American hospital.

Pathological Lesions of the Kidney Associated with Double Ureters. Report of a Case of Hypernephroma.—See this JOURNAL for June 8, 1912, page 1229.

Overlooked Function of Bartholin's and Cowper's Glands.—D. T. Smith finds that as soon as

the act of urination is completed a contraction of the walls of these glands takes place, causing a flow of mucous into the passages to replace that which has been washed away by the voided urine, thus giving a protective covering to the bare mucous membrane. The contraction of the gland walls is supplemented by that of the walls of the urethra in the male, and in the female by the contraction of the muscles about the vaginal orifice. Furthermore, it is probable that in all cases a reflex stimulus is conveyed to the glands which causes an increase of their secretion. To the physician this condition is often one of distinct importance. In a large percentage of males the secretion is sufficiently copious in amount as to cause its discharge from the urethra as a stringy mass, which has caused many men to consult their physicians as to this imaginary spermatorrhea or submit to be shamefully robbed by conscienceless quacks, when the condition was merely a kindly effort of Nature to protect the mucous membrane of the urethra against the irritating action of the urine.

Effect on Later Development of Severe and Prolonged Illness in Infancy.—See this JOURNAL for June 15, 1912, page 1294.

Caloric Requirements of Bottle Fed Infants.—See this JOURNAL for June 15, 1912, page 1294.

Moving Picture Illustrations in Medicine, with Special Reference to Nervous and Mental Diseases.—See this JOURNAL for June 8, 1912, page 1224.

Possible Transmission of Poliomyelitis through the Dog.—H. F. Langhorst insists that poliomyelitis is undoubtedly transmitted to man through more than one intermediary. One is the biting fly. The monkey, we know, may harbor the infection for some time after having the disease and thus be a carrier. Other animals are attacked by the biting fly and thus become infected. The dog is subjected to the bite of this fly and may become infected and contract the disease in one form or another, and be an active carrier of the virus for some time. Furthermore, dogs are numerous in the countries that have suffered most with poliomyelitis; in country districts, where the disease is most prevalent dogs are also more numerous. The writer considers these facts to be especially significant in connection with two cases which he reports in full, in which dogs seemingly were the agents of transmission.

MEDICAL RECORD

December 28, 1912.

Osteitis deformans (Paget's Disease). Report of One Case with Radiographs.—S. F. Jones, observing a typical case of Paget's disease in his care, reports it on account of its rarity, and at the same time presents a careful résumé of this interesting disease. The writer's case differs from the majority of similar recorded cases in that the first manifestation of the disease appeared at the age of sixteen years, affecting first the lower extremities and later the vertebral column.

Production of Malignant Tumors from the Parasites of the Earthworm.—H. D. Walker has devoted all of his time for the past eleven years to

this subject and fully believes that he has found the *fons et origo* of the disease, the manner of its production, and the proper methods of prophylaxis. He has produced malignant tumors in animals by feeding or injecting them with the parasites from the earthworm. He has also grown tumors from these parasites upon grass in sealed glass cells containing distilled water, the parasites from *Lumbricus herculeus* and small pieces of grass, which tumors he believes to be sarcoma, for when they are introduced into animals the tumors they produce in them have been pronounced sarcoma. His slogan is: "No earthworms, no cancer; plenty of earthworms, plenty of cancer." The parasites from the earthworm are left upon cabbage, celery, lettuce, etc., by the earthworm when feeding upon them. They pass out through the orifices in their skin, and find their way into the leaves through the stomata.

Cervical Adenitis in Children.—R. H. Fowler reminds us that pathological investigation has demonstrated that many cases of adenopathy are due to the tubercle bacillus. The most frequently accepted site of entrance of the tubercle bacillus is the tonsil, yet tuberculosis of the tonsil is rarely shown to be associated with tuberculous lesions of the cervical lymphatics (less than 2.5 per cent.) The infection usually leaves no trace at the site of inoculation, but invades the lymphatic glands of the neck which drain the tonsil. The indication in the line of treatment of nontuberculous adenitis is to cure or ameliorate the foci of infection which represents the causative lesions in the process. If the source cannot be demonstrated the case should be treated as one of tuberculosis. Suitable environment alone will often effect a cure. Fresh air, sunshine, and sufficient good food are requisites. The syrup of the iodide of iron and codliver oil are the best tonics. In suitable cases tuberculin is indicated. If the glands break down, open, curette, and drain. Poultrices are condemned. The ice bag relieves pain and lessens suppuration. The radical operation (removal of diseased glands) should be preceded by the removal of the tonsils and adenoids, if enlarged.

Artificial Vagina by Intestinal Transplantation.—J. F. Baldwin reports a case of this operation which he has performed six times. A transverse incision is made in the perineum between the bladder and the rectum. Dissection is carried up to the peritoneum. Through an incision in this a piece of the small bowel about fourteen inches long, a little above the lower end of the ileum, is brought down, cut across, and the ends are inverted with a pursestring suture. The continuity of the rest of the bowel is reestablished. The centre of the detached loop of bowel is caught with a clamp, and drawn down into the vaginal canal, leaving the two ends flush with the flow of the pelvis. The abdomen is closed, and the portion of bowel held by the clamp is opened and each side wiped out, and packed with iodoform gauze, so as completely to fill the vaginal space, and the edges are attached to the margins of the perineal opening. After three weeks, the septum between the two loops is crushed, thus leaving but a single vaginal opening.

AMERICAN MEDICINE.

November, 1912.

The Treatment of Pulmonary Tuberculosis by Means of Graduated Rest and Exercise.—Oliver Bruce concludes that the graduated labor system of treatment is an effort at the scientific cure of the tuberculous patient. The aim of this mode of treatment, which is fully described, is to raise the amount of antibacterial substance in the patient's blood to as high a degree as possible and to retain it at that point by gradually increasing doses of his own tuberculin (antoinoculation).

Transplantation of Bone for the Correction of Nasal Deformities.—William W. Carter has arrived at the following conclusions in regard to the fate of the bone used in these operations: The bone may die in the process of transplantation; the tissues invaded may not have sufficient vitality and reparative energy to receive the bone, nourish, and incorporate it; infection will invariably cause necrosis: if the bone becomes necrosed, even if it is not expelled it will be absorbed. Contrariwise, if the technic is perfect, and the clot surrounding the bone becomes organized, a covering of connective tissue will form around the transplanted bone which will nourish it and cause its retention as a part of the living tissues of the nose.

JOURNAL OF EXPERIMENTAL MEDICINE

November, 1912.

Experimental Pneumococcic Meningitis and Its Specific Treatment.—R. V. Lamar found that an homologous immune pneumococcus serum injected into the spinal canal of a monkey infected with virulent pneumococci, exerts a restraining influence. When employed early it prevented, exceptionally, the occurrence of infection and thus saved the life of the animal. If given later it at first retarded the disease but subsequently exerted no beneficial action and was powerless to save life. A mixture of sodium oleate, immune serum, and boric acid exerted regularly a more powerful action than immune serum alone. It not only prevented the occurrence of infection but also, when administered repeatedly, arrested the progress of an actually established infection and led often to the enduring and perfect recovery of the inoculated animal.

Pigment Formation in the Liver during Autolysis.—T. P. Strunt points out that inasmuch as most of the pigment in hemochromatosis contains iron in an easily demonstrable form, it has been generally assumed that it had its origin in the hemoglobin of the red blood cells, a primary disease of the blood, or some alteration of the blood associated with excessive intravascular destruction of the red blood cells has been invoked to explain the unusual accumulation of hemosiderin, and he takes the position that there is little justification for the assumption of a primary blood dyscrasia. Experiments were undertaken to determine the possibility of the formation of hemosiderin within parenchymatous cells in the absence of blood. Rabbit liver was first thoroughly perfused with Locke's solution, then placed in a moist chamber under aseptic conditions and allowed to undergo autolysis. The results showed that iron containing, as well as

other kinds of pigments, may be found during the autolytic degeneration of parenchymatous cells independently of the hemoglobin in the blood stream, and hence may be derived from the proteid constituents of the cell itself.

Toxic Substances Produced by Pneumococcus.—R. C. Cole found that the filtered blood serum of rabbits infected with pneumococci is not toxic. Experiments, however, showed that extracts of pneumococci prepared by keeping emulsions of the bacteria in salt solution at 37° C. for varying periods of time may be toxic, and when injected intravenously into guineapigs may produce a train of symptoms followed by death resembling that seen in acute anaphylaxis.

Protective Substances in Human Serum during Lobar Pneumonia.—A. R. Dochez has demonstrated that protective substances are usually present in the blood of patients recovering from lobar pneumonia, also that the appearance of these bodies when demonstrable, coincides rather sharply with the period of critical fall in temperature and the disappearance of symptoms.

Coagulation Time of Blood in Lobar Pneumonia.—A. R. Dochez, from a study of twenty cases of lobar pneumonia, finds that the coagulation time of the blood is generally prolonged during the acute stage, returning to normal during the period of convalescence.

JOURNAL OF MEDICAL RESEARCH.

November, 1912.

Pertussis.—Mallory and Hornor report the examination of the trachea and lungs from three patients who died of whooping cough. They found minute bacilli present in great numbers between the cilia of the epithelial cells lining the trachea and bronchi and possibly the nose also. These organisms apparently interfere with the normal movements of the cilia and possibly lead to their destruction. This prevents the normal removal of secretion, thus causing a continuous irritation which results in coughing. The authors believe that the bacillus of Bordet and Gengow is fairly generally accepted as the cause of whooping cough; also that the organism present in their cases is probably identical with the above mentioned bacillus.

The Giant Cell in Tuberculous Lesions.—A. M. Burgess, as a result of injecting various foreign substances into guineapigs, among which was a fatlike substance extracted from the bodies of tubercle bacilli, believes that foreign body giant cells are formed by the fusion of endothelial leucocytes about the injected material.

Chloroma.—A. M. Burgess, from an examination of one case and a study of the literature, holds that the tumors to which the term chloroma has been applied do not constitute a pathological entity. He considers that they represent a part of the pathological process in one type of acute myelogenous leuchemia.

Complement Fixation in Tuberculosis.—A. T. Laird, as a result of a series of tests, concludes that the complement fixation reaction with antigen derived from tubercle bacilli is at present of comparatively little diagnostic value.

Experimental Typhoid Carrier State in Rabbit.—J. A. Johnston, from the results obtained in

his experiment, states that vaccination certainly seems to be indicated as a means of treatment in the human carrier, and also as a prophylactic agent in the prevention of such carriers. He also suggests that a routine examination of the stools and urine of all typhoid convalescents should be required by municipal health authorities until successive cultures are negative.

Standardization of Vaccines.—J. G. Callison calls attention to the unsatisfactory technique of comparing the number of bacteria with normal blood, and remarks that as usually carried out the result is little better than a good guess. He advises the use of the hemocytometer and for the purpose of dilution uses the following solution: Hydrochloric acid, two c. c.; bichloride of mercury (one to 500), 100 c. c.; acid fuchsine, one per cent.; aqueous solution, enough to color.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

November, 1912.

Myasthenia gravis.—M. A. Starr, in recording two cases of myasthenia gravis, takes occasion thoroughly to review the literature on the subject, and calls attention to several erroneous views which are current regarding this disease. A majority of the reported cases have occurred between the ages of twenty and forty years; but no age is exempt, it having been reported in patients as young as three and as old as seventy-two years. In about one third of the cases the first weakness noted was felt in the arms or legs, cranial nerve symptoms appearing only some time later. Headache is a common symptom to which little attention has been given. Many other general considerations of importance are presented.

The Relations of the Fifth Nerve.—M. A. Bliss offers a preliminary statement concerning unfinished work in investigating the anatomical relationship of the fifth nerve to the cavernous and accessory sinuses. This relationship varies much in different individuals, and may explain obscure pains and neuralgias in the distribution of the fifth nerve in some cases. Decalcified heads are examined post mortem, and it has been possible to show all three branches of the trigeminus in relationship with diseased sphenoidal and postethmoidal sinuses.

Terminal States in Pellagra Resembling General Paresis.—E. D. Bondurant reports five cases of pellagra in which the clinical picture resembled more or less parietic dementia. One case was clinically indistinguishable from paresis except that the blood and spinal fluid were negative. One case was complicated by a previous luetic infection.

Acute Infectious Transverse Myelitis Due to Virus of Poliomyelitis.—B. S. Sachs contributes the clinical report of an unusual case of poliomyelitis occurring in a young woman of eighteen years, in whom gradually, over a period of three days, developed symptoms of a complete transverse myelitis involving about the middle of the dorsal cord. Improvement was noticed on the sixth day, and recovery was practically complete in about seven weeks. Of particular interest in this case was the blood test, which showed the presence of neutralization power against poliomyelitis virus, thus establishing the positive diagnosis.

JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

November, 1912.

The Lingual Tonsil.—J. H. Johnson believes: 1. The lingual tonsils are glandular organs and secrete lymphocytes; they lubricate the surface, and while in normal condition are important organs of protection. 2. The simpler throat affections require the vital organs to be carefully guarded. 3. The numerous reflexes result from diseased lingual tonsils and lingual varix, which are greatly helped or cured by proper treatment. 4. The lingual tonsils may become diseased and changed from organs of protection to organs of infection, and when they become such they should be removed.

JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.

November, 1912.

Emetic Action of Digitalis Bodies.—R. A. Hatcher and Cary Eggleston state that the view generally held that the emetic action sometimes occurring in the chemical use of digitalis bodies is due wholly or chiefly to a direct irritant action on the gastric mucous membrane is erroneous. The conclusion reached from their experiments in dogs and cats, in which doses proportionally as small or even smaller than those used therapeutically in man were employed, was that the emesis seen after oral administration is due mainly if not exclusively to an action on the vomiting centre in the medulla. The emetic activity, when the drugs were given by mouth, was found to correspond more or less closely to the absorbability of the different digitalis bodies used. All the substances tested, including several digitalis and strophanthus glucosides, convallaria and squill, induced emesis in cats more promptly and in smaller doses after intravenous administration than when given by stomach.

Epinephrine and the Bloodvessel Walls.—A. L. Tatum confirmed the finding of Trendelenburg that blood serum will protect epinephrine from oxidation and extended this observation to defibrinated blood, hirudin blood, and hirudin plasma. A solution of egg albumin, however, was found not protective. When solutions of epinephrine in Locke's solution and serum were oxygenated in the presence of fresh artery wall, the epinephrine, as well as the pressor substances that are found in serum and are measured by the vasoconstriction produced on perfusion through the peripheral vessels of the frog, were found rapidly to disappear. In a preparation with vein wall instead of artery wall, about thirty per cent. of the constrictor action of the original solution remained after one hour of oxygenation.

Action of Quinine on Leucocytes.—G. B. Roth found that quinine, given to dogs in single doses of 0.05 to 0.15 gramme per kilogramme of body weight, either by stomach or subcutaneously, produces changes in the number of leucocytes which can be divided into three phases. The preliminary stage of leucocytosis appears shortly after the drug is given and is no doubt caused by contraction of the spleen and other tissues acted upon by the drug, the increase affecting mainly the lymphocytes. An hour or two later the second or leucopenic phase

appears, with reduction of both lymphocytes and multinuclears, but mainly the former. This is followed by a third stage of secondary leucocytosis which is quite marked; the multinuclears are alone increased, the lymphocytes remaining low or continuing to decrease in number. When the drug is administered continuously for weeks the blood changes are the same. In man Roth, after giving from 0.6 to one gramme of quinine hydrochloride or sulphate in capsules, observed an actual decrease or an inhibition of the usual leucocytosis of digestion. As for the kinds of leucocytes affected, there was usually a slight increase in the lymphocytes, followed by a marked decrease. The multinuclears were little affected at first, later increased in number.

LONG ISLAND MEDICAL JOURNAL.

November, 1912.

Meningitis.—F. C. Clark reports on the records of eighty-five cases of epidemic cerebrospinal meningitis and remarks that the prognosis is invariably bad. When antimeningococcic serum is used the outcome of a case is altogether problematic. Serum has given brilliant results, and again it has been ineffective as a cure, but has simply prolonged life for a chain of complications to ensue which cannot be paralleled. Favorable conditions for the use of serum are: 1. The onset and end of an epidemic; 2, adolescence; 3, early treatment before coma, delirium, or complications; 4, normal blood pressure and slow pulse; 5, absence of rash; 6, normal temperature; 7, spinal fluid showing little turbidity and a predominance of intracellular meningococci; 8, disappearance of extracellular and decrease in intracellular meningococci on the use of the serum. In the series of eighty-five cases there were 43.5+ per cent. of deaths. Before the use of the serum the mortality ranged from fifty to ninety per cent. The serum should be given in maximal quantities after the removal of as much spinal fluid as possible. It should never be given in an amount greater than that of the removed spinal fluid. It should be given daily. The administration of the serum should be slow and the respiration and blood pressure should be the guides for its cessation. Daily treatment should be continued for temperature, cerebral irritation, and so long as the meningococcus is present.

Toxemia of Pregnancy.—E. E. Cornwall believes that the active toxines in this condition are precisely the same as are to be found in the course of any normal pregnancy and that the toxemia becomes pathological only when their quantity is greater than the maternal organism can take care of without damage. Aside from the quantity of toxine produced, the functional capacity of the liver and kidneys and the toxine tolerance of the individual tissues are of great importance. All these factors are probably much influenced by the state of the ductless glands and also by the salt content of the tissues. Calcium deficiency on the one hand, and perverted thyroid activity on the other are the chief of these factors. From these remarks Cornwall passes to the conclusion that the best way to treat the toxemia of pregnancy is never to let it develop. This is to be accomplished by the removal from the diet throughout pregnancy of all food of animal origin with the single exception of milk. This is

based upon the conception that the most important single element of danger in the toxemia of pregnancy is the chronic intestinal putrefaction with its resulting formation of toxins.

MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

November, 1912.

Treatment of Gastric Neuroses.—See this JOURNAL for August 3rd, page 253.

High Frequency Current in Treatment of High Blood Pressure.—See this JOURNAL for July 27th, page 200.

High Blood Pressure in Toxemias of Pregnancy.—See this JOURNAL for July 20th, page 150.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

November, 1912.

Mastitis from a Pediatric Standpoint.—R. A. Strong concludes that the breast milk of a nursing mother should be examined at regular intervals as a routine practice, especially in all cases showing a disturbance. In artificial feeding the child should be started on very low percentages and then gradually increased up to the caloric requirements. In all cases one should bear in mind the possibility of returning to breast feeding, and should use means to conserve the breast milk with this object in view. Incidentally, in order to keep up the supply of breast milk, it is absolutely necessary to empty the breasts at least twice daily. Massage has many advantages, but the massage should be gentle, on account of possible trauma and an increase of the inflammatory process. The best method of treating mastitis, according to the writer, is the use of Bier's suction apparatus, which relieves pain and hyperemia, removes the milk, and quickly softens the gland. The cup should be applied three or four times in a day for twenty to thirty minutes, allowing the air to be let in every five minutes and the suction renewed.

Further Word on the Ipecac Treatment of Amebic Dysentery.—S. K. Simon's critical analysis of fifteen cases of amebic dysentery treated with ipecac shows in each case a uniform and highly favorable result. In no case was there a suggestion of a recurrence of the dysenteric attacks since the discontinuance of the ipecac. The interval elapsing in these cases varied from six months to four years. The essential points in the treatment as used by Simon include absolute rest in bed for a period of at least two weeks, a proper regulation, and restriction of the diet, the use of the best variety of Rio ipecac in a pill properly coated with salol (a three hour fast preceding the administration of the pills, containing sixty grains at first, or in severe cases 100 grains, each succeeding evening reducing the dose by five grains or one pill), and the employment of bowel irrigation or flushings should not be attempted during the administration of the ipecac, as it would wash the drug out of the large bowel and defeat the object of the treatment.

NEW YORK STATE JOURNAL OF MEDICINE.

November, 1912.

Tropical Climate.—J. M. Phalen summarizes the effects of tropical climate thus: Loss of weight, lowered blood pressure, increased temperature, in-

crease in pulse and respiration, increase in red blood cells, and reduction in hemoglobin, reduction in polynuclear leucocytes, with still greater loss of phagocytes, and depression of the activity of the nerve cell. The probable causes for these phenomena are the sunlight, particularly its chemical rays, and heat plus humidity.

Surgery in Epilepsy.—G. K. Collier concludes that: 1. Surgery can be of benefit early in the patient's life, but little can be expected from it in cases of long standing. 2. Operations for the relief of epilepsy are disappointing and seldom curative. 3. All abnormalities calling for surgical treatment should receive attention. 4. Patients under surgical treatment should be most carefully observed, both before and after operation. 5. Medical treatment should be continued. 6. No epileptic should be considered as having recovered until two years at least after the operation. 7. Both lumbar puncture and venesection are of value in the treatment of status conditions in conjunction with other methods.—J. F. Munson suggests considerable reservation prior to approving surgical intervention and believes that the surgeon should look to his technic before operating lest the results of his manipulation be worse than the original condition. In a large number of cases there is some underlying condition which is in no way amenable to relief by surgery, such as a strong neuropathic taint, alcoholism, venereal excesses, etc.—E. A. Sharp holds that clots on the brain, particularly those which result from birth traumatism, should be surgically removed at once, as they not infrequently lead to scars and provide sources of irritation which may lead to the development of epilepsy. At a later stage operation is not usually successful.

Hereditary Chorea.—E. P. Ballantine observed six cases of this condition. It is characterized by the onset of choreic symptoms during adult life, mental derangement, slow progressive development, unknown cause, marked hereditary character, and failure of response to any form of treatment. Her six cases were typical, and in one of these five brothers and sisters all had chorea, and six of the seven adult brothers and sisters of the preceding generation were similarly affected.

Hormonal.—J. T. Pilcher has found that hormonal is of considerable value in postoperative cases, but that its side actions are likely to appear in patients who are already deeply shocked. It is not without dangers, and severe collapse has followed its use.

Prolapse of the Rectum.—A. V. Moschowitz regards prolapse of the rectum as being in the nature of a true hernia; that is, a portion of the rectal wall begins to bulge downward into the rectal cavity, having escaped from the support afforded by the abdominal or transversalis fascia, exactly as is the case in any abdominal hernia. The condition, once started, is likely to progress until finally the rectal wall which is prolapsed escapes from the anal orifice. He illustrates his conception by some very clear diagrams. He treats the condition by a median abdominal incision, with the patient in the extreme Trendelenburg position. Through the incision

he pulls the rectum up and has it held taut. Pagenstecher, or silk sutures are next passed circularly around the cul-de-sac of Douglas and tied. The lowest suture lies about one inch above the lowest point of the cul-de-sac; six to eight similar sutures are placed above this at intervals, and continued as long as the peritoneum will come together, thus obliterating the cul-de-sac. It is advisable to include the pelvic fascia in the sutures where possible. In the female the sutures are also anchored to the body of the uterus when this is reached. The sutures should catch the serous coat of the rectum to prevent the later formation of another hernia. No other treatment is employed and the abdominal wall is closed. The bowels are not confined. The results so far have shown 100 per cent. of cures.

Gallstones.—See this JOURNAL for November 9, 1912, page 933.

OPHTHALMOSCOPE

November, 1912.

Salvarsan and the Eye.—In the discussion on salvarsan in diseases of the eye at the annual meeting of the British Medical Association, A. M. Ramsay described neosalvarsan as a substitution product of salvarsan that bears the number 914 in Ehrlich's laboratories. It is a condensation product of formaldehyde sulfoxalate of sodium and salvarsan. It is a yellowish powder readily soluble in distilled water, and consequently has an advantage over salvarsan in being much more easily prepared for injection. An amount of neosalvarsan corresponding to 0.1 gramme of salvarsan is dissolved in the proportion of 0.1 gramme to fifteen c. c. of freshly distilled water, which should be under 22° C. The solution must not be shaken violently or exposed to heat and should be prepared just before injection, as neosalvarsan becomes oxidized even more readily than salvarsan and forms compounds that are highly poisonous. He finds no difference in the therapeutic effect of the two preparations, but it has been asserted that neosalvarsan is more active and less liable to be followed by undesirable after effects. In acute syphilitic diseases of the eye it brings the disease quickly under control and if given in time prevents permanent damage, but he doubts if it is really curative, and obtains his most trustworthy results when salvarsan is combined with a mercurial treatment.—S. H. Browning has obtained good results from the use of the preparation in sympathetic ophthalmia, the blood count becoming normal and the eye quiet.—J. Igersheimer gave an account of his experiments on cats with neosalvarsan, and of his clinical experience therewith. He prefers neosalvarsan for affections of the anterior parts of the eye, salvarsan for affections of the retina and optic nerve, especially when the nervous system is attacked in any way.

PENNSYLVANIA MEDICAL JOURNAL.

November, 1912.

Cervical Adenitis.—G. M. Dorrance treats this condition with open air and forced feeding, removal of the primary source of infection, and one or more courses of x ray treatment. The x ray treatment consists of approximately two exposures weekly of about fifteen milliamperè minutes each, with the

anode twelve inches from the skin. The rays are filtered, either through sole leather or aluminum. Sheet lead protects the patient, except in the area for treatment. At the first symptoms of blushing of the skin the treatment should be interrupted for two weeks.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Special Meeting in the Borough of Queens, April 1, 1912.

Dr. L. HOWARD MOSS in the Chair.

Eye Strain in Children.—This paper, by Dr. ELLIOTT W. SHIPMAN, of Richmond Hill, will be published in the JOURNAL.

Dr. J. SCOTT WOOD, of Brooklyn, said he was thoroughly in accord with the views of the reader of the paper in regard to the examination of the eyes of the children in the public schools. This should be done by competent ophthalmologists, but as a matter of fact the medical school inspectors in New York to-day were not ophthalmologists. The shortcomings of these men in regard to the children's eyes could be seen at any ophthalmological clinic. Many erroneous diagnoses were made, and not infrequently cases were met with in which there was no disorder of the eyes. The matter of wearing glasses was of great interest, and the question always arose, When ought glasses to be prescribed for a refraction error? The majority of ophthalmologists were agreed, he believed, that this should be done at as early an age as possible, say three or four years. Mothers sometimes noticed that at times their children's eyes turned a little, or, as it was commonly expressed, there was a kink in the eyes. Now, unless such a condition were corrected promptly it was likely to develop later into hypermetropia or astigmatism. The eyes might become amblyopic, and when this derangement was once established it was difficult to correct. As to the advisability of employing prisms in low degree of muscular insufficiency he was somewhat doubtful. In his own experience prisms for continuous use had not proved very satisfactory. In the paper Doctor Shipman, probably from a feeling of modesty, had not referred to one matter which seemed to him of great importance, namely, the practice, now common (and even among some physicians) of sending children to opticians. This was all wrong because these men were not competent to do refraction work properly. For one thing, many cases could not be diagnosed correctly without the use of drops, and opticians were prohibited from employing mydriatics. Innumerable instances were met with in which the refracting optician had selected wrong glasses, and not infrequently the eyes of patients were damaged by them. This was a point which ought to interest the general practitioner, as well as the ophthalmologist.

Dr. WILLIAM H. BATES, of Manhattan, said that a great deal was taught and was laid down in the textbooks which was not true. He agreed with Doctor Shipman that trained ophthalmologists should be employed to inspect the eyes of school children; but he would go further than this. Giving glasses to young children did not always cure or help them. For the past few years he had examined the eyes of from 1,500 to 2,000 school children every year, and he had also followed up the children from year to year. He had studied children who had been "refracted" by other ophthalmologists, by opticians, and by himself, and he found that in the course of time their eyes had changed; so that many of them, including cases of hypermetropia, astigmatism, and myopia, were able to give up wearing glasses. He had tested the eyes of a number of infants at birth and days, weeks, and years later, employing a solution of atropine sulphate of the strength of sixteen grains to the ounce, and in different instances he had found hypermetropia and myopia. Moreover, he had seen these conditions disappear. The ophthalmologists ought to go into the public schools to study the children's eyes, and thus get possession of the real facts. As a result of such study the time was coming when our people would

be able to do with fewer glasses than at present. It had been definitely ascertained that uncivilized races had perfect vision; but when these came to live in houses and were subjected to the influences of civilization they commonly became affected with myopia, hypermetropia, or astigmatism. What was needed at present was a more general and careful study of ocular conditions in the young. From this the medical profession would one day know enough to prevent the disorders now so prevalent.

Dr. JOHN E. VIRDEN, of the Bronx, said that the medical school inspectors had done a great deal of good, but they did not get at the root of the evil. He believed that for entrance to the public schools there should be required not only a certificate of vaccination, but also a certificate of vision. This would save some children from blindness and many from the truant school. If glasses were needed, we could not begin too early with their use; for thus there would be the less trouble with the eyes later on. The refracting optician was a curse to humanity. The time would come, he had no doubt, when he would be abolished, but this would not be until more men were able to estimate refraction than was now the case. All professed ophthalmologists to-day were certainly not competent in this regard. Much less so were the opticians, who had pursued a short course of training in which there was a little about refraction and much more about how to sell glasses. These men were in reality practising medicine without a license, and their work should be stopped.

Dr. A. ERNEST GALLANT, of Manhattan, spoke of the unreasonably high prices which some institutions charged for the glasses which they sold to patients and said that at the Amity Dispensary, where he had to audit the accounts, he had arranged that the price to the patient should be only twenty-five per cent. more than the cost price of the glasses. On account of breakage, etc., however, the actual excess was only about ten per cent. He did not believe in physicians connected with such charitable institutions helping them to make money out of the poor. There was, he thought, too much commercialism about these institutions.

Doctor SHIPMAN, in closing, said that as to the charges for glasses at institutions, from observation he knew of two or three where to the extremely poor, glasses were furnished free.

Abdominal Distress in Children beyond Infancy.—This paper, by Dr. LE GRAND KERR, was published in the *JOURNAL* for June 1, 1912.

Dr. WILLIAM SHANNON, of Manhattan, said that Doctor Kerr had admirably focused for us conditions which were met with every day. In children, pneumonia and pleurisy were almost invariably characterized by abdominal pain, and if the thoracic affection were on the right side it might be mistaken for appendicitis. On the other hand, appendicitis was sometimes thought to be intestinal indigestion or trouble due to worms. Notwithstanding all the warning we had had in regard to the matter, he was inclined to believe that appendicitis occurred more frequently than was generally supposed to be the case. The scientific young practitioner of the present day was rather too apt to neglect the minute study of the clinical symptoms presented by a case, and in making his diagnosis to depend too much upon blood count and other laboratory findings. Having mentioned one or two illustrative instances of this, he spoke of the rapidity with which appendicitis sometimes developed and advanced to an alarming stage. This was well shown in the case of a little daughter of his own, only a day or two previously. Doctor Shannon went on to say that he was in favor of operation in every case in which we could make the diagnosis of appendicitis. In children this affection was apt to prove rapidly fatal on account of special anatomical characteristics, and if perforation occurred the resulting peritonitis spread far more quickly than in the case of adults.

Dr. ELI LONG, of Manhattan, said it was certainly true that it was necessary to bear quite a number of affections in mind in endeavoring to get at the real condition present. The differential diagnosis between appendicitis and lobar pneumonia was often difficult, and sometimes impossible. Here there was only one thing which would help, and that was experience. He was especially interested in the allusion to floating kidney in children. Personally, he had been trying for years to find one, and had not yet succeeded. In adults it was generally the case that when we

had a movable right kidney the condition was accompanied by appendicitis, but he did not know how this would be in children. He was also much interested in Doctor Kerr's statement that recurring bilious attacks, so called, were sometimes an indication of appendicitis. He had at present under his care a little patient who suffered from such attacks, and he would now make a special effort to find out, if possible, whether an old appendicitis was at the bottom of the trouble.

Dr. RANSFORD E. VAN GIESON, of Brooklyn, said that, having been in practice for nearly half a century, he had a good deal of experience, and yet he still found himself sometimes in doubt in regard to the presence of appendicitis or, at its commencement, of a right sided pneumonia. On account of the frightful rapidity with which appendicitis often advanced in such subjects, any child under nine years of age should be given the benefit of the doubt; so that if the evidence present were in favor of appendicitis, immediate operation was called for.

Dr. LEWIS M. SILVER narrated four cases which had come under his observation. The first was that of his own daughter, now eighteen years old, who, when three and a half years old, was operated on for a rapidly developing appendicitis. The second was that of a child three and a half years old, still in his care, in whom he had made the diagnosis of pyelitis, but whether this was in the right or the left kidney he was unable to say. At first he thought the patient might be suffering from malaria, as there were recurring exacerbations of temperature, but he then found the urine loaded with pus. A specimen of this and also a specimen drawn later with the catheter were sent to Doctor Sondern, who reported that neither specimen contained tubercle bacilli and that colon bacilli were found in the first, but not in the second. The third patient was a boy of ten years in whom he diagnosed rupture of the kidney. He had been injured while sliding down hill on skates in Central Park, and when seen was suffering from severe shock, while the urine was almost pure blood. The fourth was a very obscure case which he saw at the Vanderbilt Clinic. The history was indefinite, and the patient, ten years old, was evidently in a state of shock. Examination showing that the abdomen was distended, he at first supposed this to be due to an overdistended bladder; but such was not the case. As the condition present seemed very serious, he advised that the child should be taken to Roosevelt Hospital. This was not done, however, and he afterward learned that a fatal result had occurred within two or three days.

Stated Meeting, April 15, 1912.

The President, Dr. REYNOLD WEBB WILCOX, in the Chair

Abbott's Method of Correcting the Fixed Spinal Curvature.—Dr. DEXTER D. ASHLEY read this paper, which was published in the *JOURNAL* for April 27, 1912.

Dr. REGINALD H. SAYRE said this was certainly a most intelligent way of improving the condition of the spine. For a number of years he had been accustomed to have patients with lateral curvature practise certain movements which were of the same character as those of sailors when engaged in hauling up a heavy cable, which had the effect of arching the spine well, and nothing else that he had ever done had proved so satisfactory in this class of cases. What, therefore, he had been able to carry on for only a very short time each day, Abbott had now discovered how to keep up for the whole twenty-four hours. There could be no question whatever, he thought, that Abbott had made a very great advance when he found a method of putting up his patients in a position which, in very homely phrase, was like that of cats on the back yard fence with their backs up. It was extremely difficult, however, to apply pressure to so many vertebral bodies in one direction and yet not affect in any way the other vertebrae. The state of affairs was different from that met with in club foot, where the problem was much simpler, and he was therefore not so optimistic as Abbott appeared. There were, he believed, certain cases which could not be improved.

Doctor ASHLEY said that "keep your back up like a cat" was exactly what he had been telling his patients. The arching of the spine was what was required, and Doctor Sayre's remarks had shown how many of us approached the idea in different ways. Personally he had often thought that if he could only hold his patient in the desired

position he could effect a cure, but before Abbott's discovery he had lost faith in the possibility of doing this by means of a plaster of Paris jacket.

The Female Perineum from a General Surgeon's Standpoint.—Dr. ROBERT T. MORRIS said that many years ago he was impressed by the fact that most of the perineal operations dealt with fascia alone, and did not appeal to the general surgeon, who liked to have muscles actually in sight, when any repair was to be made. Dissections which he had made of ruptured perineums showed that atrophy of most of the muscles and fascia took place rather rapidly after the perineum was torn. The pubococcygeal portion of the levator ani muscles remained plump and in good condition, because of their continued action in other work, after the perineum had been ruptured. In ordinary cases of ruptured perineum he made a horseshoe incision with the arms extending between the labia, placed a finger in the vagina, and felt the large, round portion of the levator ani, stabbed a pair of scissors through one side of the horseshoe incision down to this point, opened the scissors *in situ*; repeated the process on the opposite side; cut intervening fascia, and then sutured the levator ani muscles in the midline, with three or four interrupted kangaroo tendon sutures. A continued suture next united the fascia which carried any remains of the transverse perineal muscles and of sphincters.

Where the external sphincter of the anus was completely torn, he made a second horseshoe incision, with the arms pointing downward, exposed the blunt ends of the torn sphincter ani, united them with one or two kangaroo tendon sutures, and then completed the regular operation. This made a very strong, durable, accurate, perineal repair, which could be performed easily in ten minutes without any hurry. The perineum should be repaired before degenerative changes had taken place in muscles and fascia that had been thrown out of commission. Immediate repair of the recently torn perineum could not be made so accurately because of the bruised and torn tissues. Immediate repair was desirable, however, in these cases because we usually get primary union if there was a good flow of normal lochial fluid, Nature's antiseptic, which bathed the parts freely. If union were missed, or if it were not attempted at this time, the accurate anatomical operation was to be done later.

Dr. RANSFORD E. VAN GIESON said that prevention was sometimes better than cure. Many years ago he had suggested and practised the plan of inserting two or three sutures through the perineal body in cases where it seemed probable that rupture was going to occur. If this did take place, the sutures were tied, but if not, they were withdrawn. He had never published any account of this procedure, and within the last three or four years he had seen the measure advocated by some one in the medical journals.

Surgery from the Pediatric Standpoint.—Dr. LE GRAND KERR said that while an accurate diagnosis was most important, it was not all important. There still remained another most important factor, namely, what would be the probable outcome of the injury or disease and what estimate could be placed upon the probable course and termination if an operation was undertaken? To appreciate fully what the final outcome might be often entailed a close acquaintance with many facts which at first sight seemed to have no direct bearing upon the disease or injury; yet these might be such as to entirely change the usual interpretation of symptoms. The first requirement of a pediatric surgeon was a broad clinical experience with surgical conditions and a perfection of technic acquired through actual contact with many cases. This experience would teach him that an operative procedure in the child required more preliminary planning, more rapid operating, and infinitely more gentle handling than a similar procedure in an adult. To the knowledge which he already possessed of the details of scientific surgery he should add a further knowledge of and love for children. There were two ways in which these requirements might be met; first, by acquiring a sufficient knowledge of children and their diseases, not only from books, but through years of experience, and, second, by making use of the trained pediatricist.

Just as soon as the immediate institution of some surgical procedure was made the paramount consideration in a child, whether it was in need of it or not, there were brought into play other factors which might be made more serious by interference or which markedly influenced the

end results and finally forced themselves to attention, although they had been treated with scant consideration in the beginning. It was not a common practice among surgeons to obtain any detailed history of the possibility of exposure to infection previous to an elective operation, and, as a matter of fact, many had admitted that they were unfamiliar with the periods of incubation of the various exanthemata. Yet he had observed several serious and some disastrous results which might have been entirely avoided if such a history had been secured in time. It could readily be appreciated that the development of a disease like measles, scarlet fever, diphtheria, or whooping cough, closely following an operation or occurring during convalescence, would materially influence the results, and it was not alone that the complication was itself serious, but all infections in children were more severe when there was the added depression consequent upon any surgical procedure. Again, many children who were not in good physical condition were brought to the surgeon for the correction of a deformity, the removal of a slowly growing growth, or other elective procedure. While they might survive the operative procedure, this often suffered in repute because there was not the return to normal efficiency which the parents expected; a result which could have been obtained by proper attention beforehand. Even under conditions apparently entirely surgical the surgeon could not feel the same security in cases occurring in children that he did in those among adults. This was well illustrated in the recognition of both acute and chronic appendicitis. While not so in every instance, it was commonly the case that an accurate and complete diagnosis was essential to the institution of adequate treatment, and, as a consequence, children suffered in treatment from too much or too little surgery. The inevitable result was that as far as operative relief was concerned, to the lay mind its results were questionable in children.

Dr. GODFREY L. PISEK said that Doctor Kerr's contribution was timely, as well as valuable. Fortunately in a city as large as New York there was afforded an opportunity of carrying out some of the suggestions made in the paper. There was a distinct surgery of childhood, and a man who regarded a child as merely a little adult was not competent to do surgical work on children. He believed the time was coming when there would be a chair of surgery of children. For one thing, the anatomy of the child differed from that of the adult. The surgeon, he thought, had taught the pediatricist to be conservative, because he (the surgeon) had not been careful enough in regard to details. The surgeon should be able to recognize congenital abnormalities. He should not be simply a mechanic, saying when called to a case, "Tell me what you want, and I will do it." This was not right, for he should know something about children and their ailments. Some men had had a large mortality and others few or no fatal cases, and it could scarcely be doubted that the manner in which these infants were fed had had much to do with these results. Having referred to the importance of x ray examinations, Doctor Pisek concluded that we should always bear in mind the fact that from a surgical point of view, as well as others, the child was an entirely different problem from the adult.

Dr. FRANZ TOREK said that the importance of thoroughly investigating the general condition of the patient applied to all surgical cases, whether in the child or the adult. Doctor Kerr had done well in telling us not to forget that a child upon whom it was desired to operate might possibly be in the incubation stage of some infectious disease, and it was certainly advisable always to inquire carefully whether the child or any of the family had been exposed to the risk of contagion. Sometimes, however, in spite of all precautions, these infectious diseases took us by surprise. As to the diagnosis of appendicitis, he had been called upon to operate in at least six cases where he found, instead of appendicitis, some pulmonary trouble, perhaps more frequently pleurisy than pneumonia. As to the question of shock, he could not quite agree with the reader of the paper. He had been brought up to be greatly in fear of shock, but, as time went on and his experience increased, it had lost some of its terrors for him. He thought that if in the case of children we were to substitute for shock the word hemorrhage it would be getting nearer the truth. The losing of blood was a matter of the gravest import to a young child, and it was therefore highly desirable that in operating on such subjects sur-

geons should be extremely careful to prevent all bleeding. He believed that if this were borne in mind we would hear less about shock.

Dr. WILLIAM SHANNON said he thought the most expert surgeon could not take offense at anything which had been said this evening. Due credit had been given to skill and technic. He did believe, however, that the pediatricist could often be of service. A correct diagnosis was essential not only for medical but for surgical therapeutics.

Dr. A. ERNEST GALLANT said that in 1891 he had spent some time at the country branch of the New York Infant Asylum at Mount Vernon, where there were some 400 children ranging in age from ten days to four years, and as a result of the knowledge of children and their ailments which he gained from this experience he believed that he had since lost a number of surgical fees. A man who had not thus spent some time working among children would certainly sometimes perform operations which were not called for, and, in his opinion, any one who did not understand children was not fit to do surgical work on them. He was very glad to hear Doctor Pisek speak of the anatomical differences between the child and the adult. There was a great lack of knowledge regarding the anatomical peculiarities of early life, and it was also very difficult to secure such knowledge. He had discovered this when, some time ago, he was trying to learn something of the comparative anatomy of the adult and the child, for he could find very little upon the subject in the whole library of the Academy of Medicine. As to the matter of shock, he had always supposed that children stood shock well. It was true that he had seen some nearly killed by chloroform, but he would not consider this as shock. He still believed, however, that in the case of children chloroform was preferable to ether as an anesthetic. The surgeon, in his opinion, should make his own diagnosis. In a number of instances where he had been called in the attending physician had told him what was the matter with the patient and what he wished done, but while he was willing to take into consideration the points thus given him, he always liked to form his own opinion of a case. The main point in Doctor Kerr's paper was that the surgeons and the pediatricists ought to get together. He believed that he was right, and that when there was more of this coming together there would be fewer mistakes and also fewer operations.

Dr. ALFRED KAHN said that in every case we had to be guided by the conditions present, and that we could not always tell what was going to be the result. Reference had been made to status lymphaticus. Who could say whether this was going to occur from the anesthetic? In the future he believed that the surgeon would be more of a mechanic, to be called in to do a special thing. As to the general condition and requirements of the child, the best judge undoubtedly was the general practitioner, who had known and cared for it from infancy.

Doctor KERR, in closing, said in reference to Doctor Torek's point that infectious diseases sometimes came upon us as a sudden surprise, that this was because the child had not been under sufficiently careful observation. All children were liable to contract the exanthematous diseases, and in every instance the question of exposure should be considered. In order to avoid shock in cases requiring manipulations of considerable length, such as extensive burns or scalds, he thought that several short periods of anesthesia were much better than one long, dangerous one. One of the most common causes of shock was the pulling and handling of the tissues, as in the careless use of hemostats, etc., during an operation. He was glad to say that in two of the hospitals with which he was connected the pediatricist now saw all patients under twelve years of age, whether medical or surgical; in the latter conferring with the surgeon. As one result of this plan, there had not been in the two years since its adoption a single operation for appendicitis in either of these institutions where appendicitis was not really present. In another hospital where he served, however, only the medical cases under twelve, but not the surgical, were allotted to the pediatricist, and here there had been a number of instances in which mistakes were made. He had taken care to observe the work of a number of careful and conscientious surgeons, and he had convinced them of the need of cooperation in children's cases.

Letters to the Editor.

THE NEW YORK STATE NURSES' ASSOCIATION AND THE NURSES' PRACTICE ACT.

JAMESTOWN, N. Y., January 7, 1913.

To the Editor:

The recommendation of the New York State Nurses' Association to have the Nurses' Practice Act so amended as to "debar those who have not had institutional training from practising as nurses," referred to editorially in the NEW YORK MEDICAL JOURNAL for January 4th, will debar from New York State ninety per cent. of its nurses. Such a result is so profound in its importance as to demand the most searching inquiry into the reason for depriving these women of a livelihood and the family of limited means of a competent nurse.

From whom does this demand for the "closed shop" in the nursing world come? Not from the medical profession, because far more than half of their cases to-day (the United States census of 1900 gave only ten per cent. of nurses as trained) are in charge of nurses who would be debarred by the proposed law. Manifestly not from patients because they are employing far more practical nurses than hospital nurses.

Any investigator of nursing conditions will find that the entire question of the demand for a nurse resolves itself solely into the fitness of the individual. If she is competent in the sickroom and possesses the real nursing qualities, many of which have nothing to do with hospital training, patients will demand her services without regard to the means by which she gained the mastery of her art.

The patient or physician, when seeking a nurse, selects the one who is successful, whether she is called trained or untrained, professional or nonprofessional, hospital or practical. It matters not what her training, nor where she received it, if she is proficient and expert in her qualifications for the case in hand. Whatever her training and wherever found, she is the nurse who will supersede all others.

Concerning registered nurses (R. N.) A. S. Kavanagh, D.D., superintendent of the Methodist Episcopal Hospital, Brooklyn, N. Y., says: "As a rule we think the much coveted R. N. is a meaningless appendage in private work where the doctor or the patient or both, will select the nurse without regard to the presence or absence of R. N. Indeed, frequently she is selected without regard to whether she is a graduate or not."

Furthermore, it is estimated that eighty-five per cent. of the sick are unable to secure hospital nurses because of the prohibitive nursing wage rate of \$25 a week or more. Certainly the great proportion of the populace does not wish its nurses who will work for \$10 to \$18 a week debarred by this closed shop movement. In the city of Jamestown, where the average weekly income is estimated at not more than \$12, the organized hospital nurses have recently advanced their charge to \$25 a week. Would such a community vote to debar all other nurses? The answer is too obvious for discussion.

What will be the effects of compulsory registration? A law such as proposed would necessarily leave the majority of the people without nurses, because there are not enough hospital graduates to supply the demand, and because the average family cannot pay \$25 a week, even if there were enough nurses at this rate. Furthermore, the law will debar thousands of earnest, capable nurses of their vocation. This is not an idle statement, but a statement based upon facts. Scores of small hospitals, registered hospitals, and sanitariums are graduating efficient trained nurses, but these nurses cannot comply with the requirements of the registration law. Hundreds of New York State women, many of wide experience in the sickroom, have increased their efficiency by a correspondence course in nursing. The majority of these women could have studied nursing in no other way. Their work is immeasurably superior to that of the untaught nurses, and there is ample evidence that as a class their work falls but little below that of hospital graduates.

If it is found that as a class, these home trained nurses can give comfort to the patient and intelligently carry out

the orders of the physician, their work merits recognition and assistance to greater usefulness. No law should debar the public from having the privilege of securing them to care for the sick, nor should this useful class be handicapped in any way either by closed shop methods or by denying them the title of "nurse"—a term as old as humanity itself.

A writer in the *Dietetic and Hygienic Gazette*, commenting on correspondence schools for nurses, says: "Many women, undoubtedly, are improving this opportunity of studying nursing because there is no way for them to secure the advantages of the hospital training school. We believe there is no question of their inferiority compared with the graduates of the hospital training school; the real question is whether they have improved themselves as nurses by their correspondence study. . . . According to the most reliable statistics, the untrained nurses outnumber the trained nurses in actual service in this country by about nine to one. . . . Is the correspondence school doing a good work for this class of nurses? If it is, it has demonstrated its right to teach nursing—not in competition with the recognized training schools, but in alliance with them, meeting the needs of those who are crowded out of the training schools, and thus doing a most useful supplementary work."

The writer of this article is associated with The Chautauqua School of Nursing, which conducts a home study course in nursing. More money and more time have been spent in perfecting the text and illustrative matter of its study material and in enhancing its teaching value than have ever been devoted to any work on nursing. The study material is practically a cyclopedia of the art. The very fact that a woman possesses the intelligence to master so exhaustive a course by her unaided efforts is of itself evidence that she has the character and at least some of the personal qualifications which make her presence in the home and sickroom desirable.

Now that the work of this school has been actively prosecuted for more than a decade we believe the time has come to answer these questions in the light of actual results. If such a school as ours is carrying on a work detrimental to the public welfare it should be considered as being against public policy and the facts should be known. If, as we hold, the economic value of its work takes rank with that of institutional training by providing competent nurses for those patients who cannot meet the wage demands of the organized hospital graduates, then this fact should be known.

In justice to these nurses, to their patients, and to the physicians who have assisted them, we make the formal proposal that a group of three physicians, of whom the supervising editor of the NEW YORK MEDICAL JOURNAL shall be one, make a thorough investigation of the status of the nurses in New York State who have been taught by this school and publish the results of such investigation. We will afford such investigators full access to our records and study material and give them every facility whereby they may gain and tabulate the actual facts from the physicians and patients for whom this large number of women have nursed.

Believing that you will agree with me that this is a situation which demands facts and not opinions, I ask your serious consideration of this proposal in the belief that it is entitled to your cooperation. In this event I ask that you will secure the assistance of the two other investigators.

JOHN M. BROOKS, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Surgery of the Brain and Spinal Cord. Based on Personal Experiences. By Professor FEDOR KRAUSE, M. D., Geh. Medizinalrat, dirigierender Arzt am Augusta Hospital zu Berlin. English Adaptation by Dr. MAX THORER, Surgeon in Chief, American Hospital, Chicago, Consul-

tant to Cook County Hospital, Chicago, etc. Volume II. With Ninety-four Figures in the Text, Fourteen of Which Are Colored, Twenty-seven Colored Figures and Four Half Tone Figures on Fifteen Plates. Rebman Company, 1912. Pp. xxviii-283 to 819.

Volume III. With 42 Figures (3 of which are Colored) in the Text, and 47 Colored Figures on 22 Plates. New York: Rebman Company, 1912. Pp. xx-821 to 1201. (Price, \$7 for each volume.)

This beautiful work of Krause deserves only commendation. It represents a wealth of material observed previously, at operation, and post mortem. It is not a textbook, but a series of most instructive and accurate observations made by the author and his numerous assistants. There are beautiful illustrations of conditions found at operation or post mortem examinations, in which one is able to make out the anatomical structures as clearly as if present at the operation or autopsy. Beside this, the technique of the usual up-to-date operative procedure is illustrated most clearly by diagrams and colored plates so that the student finds a most helpful guide in his operative surgery instruction. The language of the text is brief, instructive, and clear. The surgeon about to perform any particular endocranial operation will profit greatly by a study of similar cases described and depicted in these volumes. The immense material of Krause's clinic and allied clinics makes it possible for him to furnish the surgeon and student with a description of representative cases of practically all forms of endocranial disease necessitating surgical interference. The book has therefore almost the value of a visit to his clinic, with the advantage that the whole field of neurological surgery is covered. The book is of great interest and worth, not only to the general and neurological surgeon, but also to the eye, ear, nose, and throat specialists and to the syphilologists.

Manual of Human Osteology. By A. FRANCIS DIXON, M. B., Sc. D., University Professor of Anatomy and Chirurgery, Trinity College, Dublin. Illustrated with 178 Figures, Many in Colors. New York: William Wood & Co., 1912. Pp. xii-316. (Price, \$3.)

Dixon's manual of osteology is most thorough. Attention is attracted at the very beginning in the perusal of the illustration index, which is unusual, because of the detailed manner in which it is given. The value of such an arrangement is very apparent. The plan of illustrating with shadowed white and black, supplemented with colored outline drawings for muscular attachments for the majority of bones, is particularly good, permitting the student to form a complete image.

Another feature of value is that the standard modern terms in the text are given first, the older terms following in italics. This puts the emphasis upon the true scientific language, Basel nomenclature, and at the same time allows of easy collateral reading. The descriptions are in clear, terse English, the style is easy, all unnecessary verbiage being eliminated. It is an excellent textbook to put into the student's hands.

Guide to Midwifery. By DAVID BERRY HART, M. D., F. R. C. P. E., Lecturer on Midwifery, School of the Royal Colleges, Edinburgh. Formerly Obstetric Physician, Royal Maternity and Simpson Memorial Hospital, Edinburgh, etc. With Four Illustrations in Colors and 268 Diagrams. New York: Rebman Company, 1912. Pp. xxiv-765. (Price, \$6.)

This volume, written by one who has evidently been a keen observer, and has had extensive personal experience, constitutes a clear and complete exposition of the subjects pertaining to modern midwifery. While the method of construction of the book is unusual, it is interesting; the essential facts relative to the subject, are briefly and concisely stated in a manner that cannot fail to interest the reader and simplify the work of the medical student, when the work is used as a textbook, as originally intended.

The guide has been arranged in two parts. Part one is devoted to midwifery from a modern standpoint with explanatory notes appended to various chapters, regarding the character of specimens to be examined, and practical work to be done, in order that "the student may know the thing itself." Part two consists of numbered notes and discussions to chapters in part one, elucidating difficult

points and, the summarizing of new operations, with descriptive charts, also, the various views and theories pertaining to the subject under discussion.

Exception may be taken to the author's views of the normal termination and management of occipitoposterior positions. Porter's method of anterior rotation of the occiput practically always succeeds in the absence of decided disproportion.

One of the many commendable features of the book, is the emphasis placed on the importance of practical knowledge of the subjects, obtained only by the examination of the proper specimens in the laboratory and museum, the use of the phantom, etc., and the examination of the living subject in the hospital.

One chapter is given on Evolution in Obstetrics, in which the author points out that the importance of Darwinism, Weismannism, and Mendelism in relation to practical points, is very great.

Contribution à l'étude du traitement du cancer du testicule. Par le Docteur C. OSORIO MASCARENHAS, ancien interne des Hôpitaux de Paris. Paris: Société générale d'imprimerie et d'édition Levé, 1912. 1^{re} p. 223.

This *thèse de Paris* is an unusually good one and covers fully the important modern observations on the treatment of cancer of the testicle, concluding with a detailed description of the thirty-one cases that have been submitted to the radical operations to remove abdominal glands that are most likely to be secondarily invaded. The author concludes that this radical operation is required in all cases that show any infiltration of the spermatic cord. The incision runs to the anterior superior spine and then to the costal margin. Retroperitoneal operation discloses the spermatic veins up to their entrance into the renal vein or vena cava. All the fascia surrounding these vessels between the ureters and the great vessels is excised. Of the thirty-one patients submitted to radical operation, three were apparently syphilitic, and only six lived for more than two years; none passed the three year limit.

Entomology for Medical Officers. By A. ALCOCK, C. I. E., M. B., LL. D., F. R. S., Lecturer on Medical Entomology, etc., at the London School of Tropical Medicine; Lately Superintendent of the Indian Museum and Professor of Zoology in the Medical College of Bengal, etc. London: Gurney & Jackson, 1911. Pp. xx+347. (Price, 9s.)

The purpose of this work is to provide a general description of *Arthropoda* concerned with tropical diseases. Without trespassing upon the domain of the physician or even the pathologist and sanitarian the author treats in successive chapters, the mosquito, moth midges, gnats, gad and robber flies, hover flies, house flies, fleas, lice, ants, bees, wasps, beetles, moths, butterflies, cockroaches, ticks, mites, spiders, scorpions, centipedes, and various other less familiar animals capable of evoking pathological conditions in the human organism. While the great bulk of the text is purely descriptive, the purpose being to enable medical officers to identify the various organisms in all stages of development, the best measures to prevent their pullulation and harmful effects are, in some instances given. The work is, on the whole, a very valuable one and fulfils admirably the purposes for which it was intended.

Present Sanitary Condition of New York Harbor and the Degree of Cleanness Which is Necessary and Sufficient for the Water. Report of the Metropolitan Sewerage Commission of New York, GEORGE A. SOPER, president. August 1, 1912. Pp. 457.

The proper disposal of the sewage of a compact population of over seven millions is a sanitary problem of the first magnitude, and it is to a solution of this problem that the Metropolitan Sewerage Commission has addressed itself. We wonder how many people ever stop to consider how New York's sewage is disposed of, and whether the present method is proper. To any one interested in sanitary science, the reports of the Metropolitan Sewerage Commission present a valuable array of facts and observations concerning the sewerage of New York city and vicinity. But what is more to the point, these facts are marshalled in so interesting a fashion that the reports make fascinating reading.

Like its predecessor of 1910, this report is divided into

three parts, devoted respectively to the Present Sanitary Condition of New York Harbor, to the Degree of Cleanness which is Necessary and Sufficient for the Water, and finally, to Tables and Plottings of Original Data Relating to Microscopical Examinations, Numbers of Bacteria, and Dissolved Oxygen.

Using the amount of dissolved oxygen as an index of pollution, or rather of the capacity of the harbor water to digest the sewage poured into it, the commission finds that parts of the harbor are already dangerously overloaded with sewage, notably the Harlem river, lower East river, and Newark bay. Measured by bacterial counts, the condition of the Harlem river far surpasses the rest of the harbor water in the degree of pollution. In order to determine the course of the sewage poured into the harbor experiments were made with floats liberated in various parts of the harbor and followed for as long as two days. The results were highly interesting and showed that the sewage probably flowed back and forth several times before reaching the lower bay and the ocean.

The opinions of the various experts on the degree of cleanness necessary and sufficient for the water are extremely interesting. The scientific medical man will particularly enjoy reading the opinion of Doctor Chapin, the genial health officer of Providence. Altogether the report is an excellent presentation of work in which all physicians should be interested.

Anæsthesia and Analgesia. By J. D. MORTIMER, M. B. (Lond.), F. R. C. S. (Eng.), Anæsthetist to the Royal Waterloo Hospital, Throat Hospital, Golden Square, etc. London: Henry Frowde and Hodder & Stoughton, 1911. (For the University of London Press.) Pp. x+276.

This little manual presents the advantage of being written by a man of considerable practical experience. This renders him judiciously conservative in the adoption of newer methods, though the spirit manifested is one suggesting readiness to use these methods should events prove them to be preferable to older ones. Spinal anæsthesia, for example, is relegated to the rear in the sense that in the author's opinion it should be resorted to only when the ordinary anæsthetics cannot be used. The salient features of each subject being given in bold type, while the text is clearly adjusted to the needs of the untrained physician or student, the knowledge conveyed is essentially practical and eminently satisfying for those who wish to gain a clear insight into the question as a whole.

BOOK AND MAGAZINE NOTES.

The object of E. H. Randle, A. M., LL. D., author of *Plurality of the Human Race*, has been apparently to prove the inadvisability of allowing the various races of men to intermarry, and upon this text to preach exclusion of Africans and Asiatics from our shores. The first 114 pages seem to be addressed to devout believers in Hebrew and Christian revelation, the remainder of the book to those who reason upon the theory of evolution. The latter, we think, have little doubt of the plurality of mankind. The book itself, is interesting and the philological speculations beginning on page 131 will be found notably entertaining to those who are concerned with the history of language.

Volume VII of the Practical Medicine Series for 1912 is devoted to *Pediatrics and Orthopedic Surgery* and is edited by Isaac A. Abt, M. D., with the collaboration of May Michael, M. D., as to the first part, and by John Ridlon, A. M., M. D., and Charles A. Parker, M. D., as to the second. We have the same high opinion of this volume as of others of the same series, all excellent works of reference for the busy man. Due credit is given to the various medical publications from which the information is mainly derived, including the NEW YORK MEDICAL JOURNAL.

Outlines of Physiology (Philadelphia: P. Blakiston's Son & Co., 1912; price, \$1.50), by Edward Groves Jones, A. B., M. D., and Allen H. Bunce, A. B., M. D., occupies a place somewhere between an ambitious treatise and a quiz compend. On the whole the work has been very well done, and for the freshman student these outlines, being traced in an interesting style that was hardly to be expected in so modest a volume, will serve very well until he is able

to fill in the shading, so to speak, by his later work in the laboratory and during his second year. The difficult subject of reproduction is particularly well managed and the chapters on food, digestion, and assimilation are complete.

Meetings of Local Medical Societies.

MONDAY, January 13th.—Society of Medical Jurisprudence, New York; New York Ophthalmological Society (annual); Association of Alumni of St. Mary's Hospital, Brooklyn; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society; Corning Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, January 14th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Medical Society of the County of Schenectady, N. Y.; Medical Society of the County of Rensselaer, N. Y.; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society; New York Obstetrical Society; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.

WEDNESDAY, January 15th.—New York Academy of Medicine (Section in Genitourinary Diseases); Women's Medical Association of New York City (Academy of Medicine); Medicolegal Society, New York; Northwestern Medical and Surgical Society; Buffalo Medical Club; New Haven, Conn., Medical Association; New Jersey Academy of Medicine (Jersey City).

THURSDAY, January 16th.—New York Academy of Medicine (stated meeting); German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Aesculapian Club, of Buffalo, N. Y.

FRIDAY, January 17th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society (annual); Saratoga Springs Medical Society.

Official News.

Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the two weeks ending January 4, 1913:

Archer, William M., Jr., First Lieutenant, Medical Reserve Corps. Granted thirty days' leave of absence. **Baker**, Carrol R., First Lieutenant, Medical Reserve Corps. Will proceed to Fort Constitution, N. H., for temporary duty. **Chase**, Chauncey L., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Dade, Fla., and will proceed to his home; granted leave of absence for one month and ten days. **Clark**, Albert P., Lieutenant, Medical Corps. Granted twenty-five days' leave of absence. **Connolly**, P. B., Lieutenant, Medical Corps. Ordered to proceed from Fort McPherson, Ga., to Fort Morgan, Ala., for duty with the 75th Company, Coast Artillery Corps, to San Francisco, Cal. **Cullen**, Charles W., First Lieutenant, Medical Reserve Corps. Will proceed to the Walter Reed General Hospital, Washington, D. C., for observation and treatment. **Etter**, Harry B., Lieutenant, Medical Corps. Ordered to report at Fort Bliss, Texas, for temporary duty in the field. **Garcia**, Leon C., Captain, Medical Corps. Relieved from the transport *Logan* and ordered to proceed to the United States for further orders. **Holland**, J. H., Lieutenant, Medical Corps. Relieved from duty at Fort Bliss, Texas, and ordered to proceed to Fort Douglas, Utah, for temporary duty. **McCord**, Donald P., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort William H. Harrison, Mont., and will proceed to Fort Dade, Fla., for duty. **Mills**, R. W., Lieutenant, Medical Corps. Relieved from duty at Fort Sam Houston, Texas, and from treatment at the Walter Reed General Hospital, Washington, D. C., and ordered to Plattsburg Barracks, N. Y., for duty. **Page**, Henry, Major, Med-

ical Corps. Left Fort Moultrie, S. C., on ten days' leave of absence. **Reddy**, J. J., Lieutenant, Medical Corps. Reported for temporary duty at Fort Hancock, N. J. **Sherwood**, John W., First Lieutenant, Medical Corps. Relieved from duty at Fort D. A. Russell, Wyo., and ordered to Fort Bliss, Texas, for duty. **Smith**, Lloyd L., Captain, Medical Corps. Granted twenty days' leave of absence about March 8th.

The following officers of the Medical Corps are detailed to take the course in the Army Field Service and Correspondence School for Medical Officers, Fort Leavenworth, Kan.: Majors William H. Wilson, Thomas J. Kirkpatrick, Henry Page, Bailey K. Ashford, Weston P. Chamberlain, Albert E. Truby, Joseph H. Ford, Louis T. Hess, Christopher C. Collins, Benjamin J. Edgar, Jr., Samuel M. Waterhouse, Eugene H. Hartnett, Charles E. Marrew, M. A. W. Shockley, Sanford W. Wadhams, Chandler P. Robbins, William J. L. Lyster, Edward F. Geldings, Arthur W. Morse, Frank C. Baker, Charles R. Reynolds, Paul C. Hutton, Frederick A. Dale, Jay Ralph Shock, Frank T. Woodbury, Henry H. Rutherford, John A. Murtagh, William W. Reno, Horace D. Bloombergh, James F. Hall, Edward R. Shriner, and Douglas F. Duval.

The following officers of the Medical Corps are detailed to enter the Army Field Service and Correspondence School for Medical Officers, Fort Leavenworth, Kans., for the purpose of taking the course in the Field Service School: Majors Henry Page, Edward R. Schreiner, Douglas F. Duval, William W. Reno, Horace D. Bloombergh, and James F. Hall.

Births, Marriages, and Deaths.

Born.

Cole.—In Washington, D. C., on Monday, December 23d, to Captain Clarence Le Roy Cole, Medical Corps, United States Army, and Mrs. Cole, a son.

Married.

Allen—Cochenour.—In Pinckneyville, Ill., on Tuesday, December 24th, Dr. B. Allen and Miss Edith Cochenour. **Barnett—Hensel.**—In Philadelphia, on Monday, December 30th, Dr. Charles Barnett and Miss Sarah L. Hensel. **Faith—Smith.**—In Dodson, La., on Sunday, December 22d, Dr. James F. Faith and Mrs. Alma Smith. **Strousse—Myer.**—In Philadelphia, on Thursday, December 26th, Dr. Leo Strousse and Miss Essie Myer.

Died

Bailey.—In Lansing, Michigan, on Wednesday, December 25th, Dr. Orla Stair Bailey, aged fifty-three years. **Beach.**—In Pasadena, Cal., on Wednesday, December 11th, Dr. Eliza J. Beach, aged seventy-seven years. **Dorsey.**—In Sedro Woolley, Wash., on Tuesday, December 24th, Dr. William A. Dorsey. **Dryden.**—In St. Louis, Mo., on Wednesday, December 25th, Dr. John L. Dryden, aged forty-nine years. **Farrell.**—In Malden, Mass., on Wednesday, January 1st, Dr. George Louis Farrell, aged forty-five years. **Guerin.**—In Memphis, Tenn., on Thursday, January 2d, Dr. John Guerin, of Chicago. **Jackson.**—In Fall River, Mass., on Wednesday, December 25th, Dr. Amos Messer Jackson, aged seventy-two years. **Jenks.**—In Aurora, Ill., on Tuesday, December 24th, Dr. Frank H. Jenks, of Rockford, aged forty-nine years. **King.**—In Riddlesburg, Pa., on Friday, December 20th, Dr. Albert H. King. **Marsh.**—In Galion, Ohio, on Thursday, December 26th, Dr. Guy C. Marsh, aged forty-eight years. **Penning.**—In Baltimore, on Sunday, December 29th, Dr. Oliver Parker Penning, aged forty years. **Post.**—In Port Crane, N. Y., on Wednesday, December 25th, Dr. Frank R. Post, aged sixty years. **Sellew.**—In New York, on Sunday, December 29th, Dr. Frederick S. Sellew, aged fifty-four years. **Tainter.**—In Callao, Mo., on Friday, December 27th, Dr. Paul R. Tainter, aged thirty-five years. **Wachter.**—In Baltimore, on Thursday, December 26th, Dr. Millard M. Wachter, of Long Island, Kansas, aged fifty-seven years. **Watson.**—In Utica, N. Y., on Thursday, January 2d, Dr. William Henry Watson, aged eighty-three years.

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WHOLE No. 1781.

Original Communications.

SUPERFICIAL METASTATIC GROWTHS IN THE DIAGNOSIS OF DEEP SEATED MALIGNANT TUMORS.*

By W. WAYNE BABCOCK, A. M., M. D.,
Philadelphia,
Professor of Surgery, Temple University.

When a malignant tumor is discovered in the body, it is customary to look for metastatic growths along the efferent lymphatic or vascular paths. In certain situations, notably within the abdominal cavity, if there is clinical evidence indicating the possible presence of malignancy, it has long been the custom of the clinician to search for enlarged lymph nodes above the left clavicle. The presence of such a lymphatic enlargement increases the probability of intraabdominal malignancy, but it is not uncommon for the clinician to verify his suspicions by then having an exploratory abdominal incision made. In the mouth or upon other mucous membranes new growths associated with lymphatic enlargement are not infrequent. The conventional method is to excise bits of tissue from the primary enlargement in order to prove by microscopical examination the nature of the growth. The purpose of this communication is to indicate that frequently such apparently direct methods of examination are in reality indirect and at times decidedly objectionable. In diagnosing a new growth within the abdomen, for example, it is important to decide two things: First, the malignancy or nonmalignancy of the condition; and, second, if it is malignant, to determine whether it has passed beyond the stage of operative relief. An abdominal section with the exposure of a primary growth may give one very imperfect information. How frequently is one unable to tell by the intraabdominal examination whether the stomach is the seat of sclerotic ulcer or a carcinoma?

A resection of a part of the growth increases the operative danger, and the part removed may be unwisely selected so that the area in which there is beginning malignant degeneration is not revealed. The suture of the infiltrated tissue may be difficult and the danger of hemorrhage, infection, or leakage considerable, and no matter how carefully this examination is made, the condition as to remote metastasis is not always proved. In such a case I reverse the usual procedure and select an enlarged lymph node or other apparent secondary growth as

giving the most valuable information. Here we find focalized the essence of malignancy. With an accessible primary growth, near the surface of the body, the excision of a portion of tissue for examination may involve some risk of hemorrhage and of the dissemination of malignancy, while the tissue removed is often so necrotic or so infiltrated that the diagnosis is uncertain. At the present time, I have under my care a patient with a growth upon the tongue from which microscopic sections have been obtained, and have been examined by two well known professors of pathology; and each has given a different diagnosis. In this case a third and later examination made from a bit of enlarged gland in the neck, not only indicates the condition, but to some degree shows the extent of the metastasis and other features.

My contention, therefore, is this, that when superficial or subcutaneous nodules appear in patients who are suspected of harboring a malignant tumor, that often the most direct way in which the diagnosis may be ascertained and the conditions of metastasis proved, is by cocaineizing the area and, by a very slight operation, removing a part or all of the nodule and subjecting it to microscopical examination. In this way one avoids the dangers that may attend the removal of tissue from the primary growth, and may absolutely prove the condition of inoperable metastasis. Obviously, superficial secondary growths are far from being invariable, yet if careful search is made, superficial metastatic manifestations will be found more frequently than is often suspected.

Some years ago a patient applied to me for loss of power in the right thumb; a few days later the entire arm became weak; vomiting without nausea occurred, and secondary headache developed. On shaving the man's scalp preparatory to operation, a number of reddish papules, two or three millimetres in diameter, were observed upon the scalp over the left motor area. A craniotomy was done, a subcortical sarcoma excised from the motor region, and later an examination of one of these scalp nodules showed it to be a metastatic sarcoma. Had I but simply excised one of these cutaneous nodules, and examined it, it would have proved the nature of the patient's motor lesion, and a very useless operation might have been avoided, for a generalized sarcomatosis soon developed. In this case, the first metastases were, as often happens, in the skin over the primary lesion. Recently, I saw a patient suffering from severe abdominal pain, weakness, and some emaciation. The most thorough examination

*Read before the Philadelphia Pathological Society, March 28, 1912.

by a very capable internist revealed no cause for the condition. The abdominal and rectal examinations were negative, and an examination of the gastric contents, urine, stools, and blood gave no clue to the nature of the disease. Finally, the patient was admitted to the hospital for an exploratory abdominal section. There was found a subcutaneous nodule, about one centimetre in diameter, near the eighth costochondral junction on the left side. The patient considered this unimportant, but said that it had been present only two or three weeks. An exploratory section showed a small carcinoma of the sigmoid bound down in the hollow of the ileum, and diffuse small metastatic peritoneal growths. The examination of the nodule from the chest wall, and of a minute mesenteric nodule showed the characteristic alveoli of an adenocarcinoma. In this patient, had we simply excised the subcutaneous nodule under local anesthesia, the patient might have been spared the useless abdominal operation and the necessity of hospital treatment.

The metastasis may also direct the method of surgical attack. Thus a middle aged man, with a large firm mass in the left hypochondrium, was referred to the hospital after very careful study by an internist for a presumable growth of the left kidney. The situation of the growth and the study of the secretions suggested that the man did not have what otherwise would have seemed probable, that is, a carcinoma of the stomach. In this case, were the condition inflammatory or a tumor of the kidney, a lumbar and probably extraperitoneal incision would have been desirable, while, were the growth one of the stomach, a median abdominal section would have been necessary to obtain the best access. Instead of incising over the growth, however, we first removed, under cocaine anesthesia, a firm, rather nodular lymphatic enlargement above the left clavicle, and the man was able to leave the hospital shortly afterward with a proved diagnosis of "carcinoma of the stomach, inoperable, and with distinct metastatic growths."

In carcinoma of the liver or peritoneum, metastasis may occur along the round ligament and a secondary subcutaneous nodule be found at the umbilicus. In carcinoma of the breast but little attention is often given to the very characteristic metastatic skin eruptions. The bluish or scarlet macules, or the dusky reddish papules that occur in the skin overlying a carcinoma, all may have their malignant nature proved by the removal of an involved bit of skin. This type of metastasis almost invariably indicates a hopeless and inoperable form of carcinoma.

At times the metastatic nodule is discovered accidentally, and enables one to forecast the patient's future. As an example, some years ago, a patient was sent to this city from a distant point, to be operated upon for appendicitis. In the removal of the appendix a firm, enlarged mesenteric gland was felt and removed. To my surprise, on microscopical examination, the picture of a secondary growth, similar to that from a carcinoma of the stomach was seen. As the patient was a rather young woman, and apparently had been relieved by the operation, the friends were surprised at the gloomy prognosis. Several months later marked symptoms

referable to the stomach developed and not long after the patient died. No test or single method of diagnosis could have told as much as this single metastatic nodule. The value of the examination for superficial metastatic growths is so obvious as to seem scarcely worthy of this emphasis, and were it not for the fact that the importance of this little method seems to be so often overlooked, I should ask pardon for bringing it to your attention.

Superficial metastases are often absent, but when they are present, it seems to me a waste of scientific energy for those who do not need the experience or mental exercise to spend days and weeks in metabolic tests, repeated physical examinations, and much deductive reasoning, when almost by a snip of the scissors a bit of tissue may be secured that may give absolute evidence as to the character of the disease.

Finally, it is to be observed that purely negative evidence is of little value, for an enlarged lymph node tributary to an area containing a malignant growth may, under the microscope, fail to give the picture of metastatic involvement.

2033 WALNUT STREET.

EDEMA OF THE LIDS.

BY GEORGE W. VANDEGRIFT, M. A., M. D.,
New York,

Instructor in Ophthalmology, Cornell University Medical College;
Assistant Surgeon, Eye and Ear Infirmary.

Edema of the lids is a condition that is brought frequently to the attention of the general practitioner, and a knowledge of its many manifestations is of practical value. It is often well to recall to mind that which perhaps we have dismissed temporarily amidst the rush of other matters; and this is the apology for the following brief outline.

Edema of the lids may be inflammatory or non-inflammatory, due to conditions in the lids themselves, in the eyeball and annexa, or in the general system. To know its many causes is of value in diagnosis and prognosis, not only of minor diseases and injuries, but also of major diseases of the eyeball, orbit, and remote organs. Inflammatory edema may be due to:

1. Lid abscess which arises from local infection, injury, or erysipelas.

2. Chronic dacryocystitis, which, when acute, will produce an edema commensurate with the violence of infection. History of a chronic dacryocystitis and the location of the point of maximum intensity or suppuration over the sac, about three mm. below the internal canthus, establish the diagnosis (Fig. 1).

3. Hordeolum or sty, an infection of a hair follicle. This is the most frequent cause of edema of the lids. No matter how intense the edema may be, the diagnosis is easy because the suppurating point is on the lid margin and the tip contains a hair. A sty at either canthus produces a more violent edema than at any portion of the lid margin, for here the pus is more closely confined by the configuration of the lid (Fig. 2).

4. An acutely inflamed chalazion or Meibomian cyst produces a slight edema. Under ordinary con-



FIG. 1.—Abscess of lacrimal sac.

ditions a chalazion will not cause edema. The diagnosis of a chalazion is made easily, for its suppurating point is on the palpebral conjunctiva, and not upon the lid margin, as that of a sty.

5. Periostitis of the margin of the orbit, most frequently of syphilitic origin. It may be recognized as a tender mass connected with the underlying bone (Fig. 3). This condition is found frequently in the region of the lacrimal sac in children suffering from inherited lues.

6. A furuncle developing on any part of the skin



FIG. 2.—Hordeolum at inner angle of upper lid.

of the lids. Such a condition is easily recognized.

7. Erysipelas elsewhere on the face produces a migratory edema of the lids, indurated and non-circumscribed that may remain as a simple edema or develop into a true erysipelas.

8. The sting of an insect frequently causes a very marked edema, which develops suddenly over night. The swelling may be so great that the lids cannot be opened. Often on the edge of the lid the mark of the insect's wound can be seen. The condition usually lasts a few days only and is not of serious import.

9. Inflammations of the conjunctiva, iris, and ciliary body at times may cause an edema, confined to the margin of the upper lids. Also an irritation of the cornea as from a foreign body will produce edema.

10. Severe blepharospasm that accompanies acute conjunctivitis, blepharitis, or ulcer of the cornea. The edema is usually severe. This condition is



FIG. 3.—Syphilitic periostitis at outer angle of orbital margin.

found almost entirely among children of eczematous diathesis.

11. Violent inflammations of the interior of the eyeball, of Tenon's capsule, abscess or tumor of the orbit, thrombosis or aneurysm of the cavernous sinus. It may be inflammatory or static, according to the etiological condition. Other symptoms are present to aid diagnosis.

12. Tarsitis, a manifestation of tertiary syphilis, is always accompanied by inflammatory swelling over the tarsal cartilage, usually of the upper lids. The condition is seldom unilateral (Fig. 4).

13. Dermatitis from rhus toxicodendron produces usually a marked swelling when the lids are involved.

Noninflammatory edema may be due to:

1. Angioneurosis, a condition that produces a transient but marked edema. It is due probably to intestinal intoxication. In women its presence has been noted at the menstrual period.

2. General circulatory disturbances as from kid-

ney lesions, causing an edema usually of the lower lids, noticeable in the mornings. A similar edema may accompany the acute infectious diseases of children. It is also a symptom of overdoses of arsenic.

4. Catarrhal inflammation of the accessory nasal sinuses. This is often accompanied by edema of the lids which may be transient, and confounded with angioneurosis. Such a transient edema should direct attention to the sinuses. It is present also with coryza.

Certain conditions simulate edema, such as tumors of the lid, for example, dermoid cyst of the outer angle of the orbital margin. Palpation establishes the diagnosis. Emphysema may appear to be an edema pure and simple. It is due to displacement of air into the tissues of the lids from the nasal cavities through a fracture of the inner wall of the orbit, caused by a violent cough, sneeze, or blowing of the nose soon after the injury has been sustained. A diagnosis depends on the feeling of crepitation the air imparts to the palpating finger. The condition often is accompanied by ecchymosis.



FIG. 4.—Syphilitic tarsitis.

A detailed description of the treatment of these many manifestations of edema of the lids is hardly relevant to the purpose of this paper. Such an account would carry us far afield into general medicine and surgery. The important point for the present is to impress upon our minds the significance of all these various phases, a significance that bears not only upon trivial affections, such as styes and chalazia, but also upon such vital matters as ethmoiditis, brain lesions, and chronic Bright's disease. Confronted with a case of lid edema, we must not forget that it may be the danger signal of a very serious disease and not a simple local affair. To describe the treatment of these grave conditions is not in place here, but there are many of the less serious manifestations, such as we meet in every day practice, a brief description of which may not be amiss.

Abscess of the lid. After determining that the condition is that of ordinary abscess and not an acute dacryocystitis, an incision is made in a direction parallel to the orbicularis fibres. If the abscess is at the outer angle of the orbit it may be con-

nected with the lacrymal gland. If it is situated at the inner and upper angle of the brow a careful probing is necessary to ascertain the presence of frontal or ethmoidal sinusitis. An abscess of the lacrymal sac is opened through the suppurating area of the sac immediately below the internal canthus, in a line parallel with the nose. The cavity is then treated along usual surgical lines until all acute signs have subsided, when the sac may be extirpated. If the case has been seen before the development of pus the edema may be subdued by frequent, ice cold applications.

The edema that accompanies a *hordeolum* quickly subsides when the suppurating tip of the styte has been incised. The suppurating point of an acutely inflamed *chalazion* is found on the palpebral conjunctiva, and the lid must be turned that the incision may be made properly. The edema that results from the *sting of an insect* is best treated by frequent, ice cold, boric acid applications. At times suppuration develops when an incision becomes necessary.

The edema that sometimes complicates *eczematous conjunctivitis* and *keratitis* is most stubborn to treatment. Rarely does it surrender to hot or cold applications; and after trying our patience and resources it gradually disappears as the underlying disease passes away.

147 EAST EIGHTEENTH STREET.

BISMUTH PASTE IN THE EAR AND NOSE.*

BY GEORGE M. COATES, A. B., M. D.,
Philadelphia.

On March 14, 1908, Dr. Emil G. Beck, of Chicago, published an article in the *Journal of the American Medical Association* entitled A New Method of Diagnosis and Treatment of Fistulous Tracts, Sinuses, and Abscess Cavities. This method, now well known, was the filling of the cavities with a bismuth paste of his own formula, and so remarkable were the results obtained in many cases that the new procedure received speedy recognition by surgeons all over the country. Dr. Joseph C. Beck has been most active in determining its value in diseases of the ear, nose, and throat. Originally intended for diagnostic purposes in x ray photography, it was soon found that old sinuses which had been injected to distention in order to determine their various ramifications, showed a marked tendency to heal without further treatment. This healing property has been attributed by different observers to two main causes.

Ridlon and Blanchard believe that the mechanical action of the paste in distending the cavities produces the cure. Don, Ryerson, and Dunning suggest that the curative action is due to the liberation of nitric acid from the subnitrate of bismuth by contact with organic acids, inhibiting the growth of microorganisms. Beck believes that both of these may be true, but that its marked chemotactic power produces a local leucocytosis and that thus, indirectly, it has a phagocytic action. The technic is

*Read before the Section in Otology and Laryngology of the College of Physicians of Philadelphia, October 16, 1912.

simple. The bismuth paste is injected into the cavity to be treated, which has not been previously prepared for its reception (i. e., washed out), until the cavity walls are distended. It is retained by a simple dressing, allowed to harden, and repeated if necessary at intervals of a few days. Two formulæ are used:

No. 1. (For ordinary use.)

Bismuth subnitrate (arsenic free), ...33 percent;
Petrolatum, ...67 per cent.

No. 2.

Bismuth subnitrate, ...30 per cent.;
Petrolatum, ...60 per cent.;
Paraffin (120° melting point), ... 5 per cent.;
White wax, ... 5 per cent.

NOTE. This second formula is used in cases where it is difficult to retain the softer mixture of No. 1.

It is not my purpose to take up this method in detail in its application to general surgery, but only in its relation to ear, nose, and throat diseases, and to add a few experiences of my own in its use in about fifty cases of different kinds.

I began the use of this method shortly after the publication of Emil Beck's original article, my attention being called to it by Dr. Alexander R. Craig, instructor in my service at the Philadelphia Polyclinic. The first case in which I used it was a large subperiosteal abscess containing half an ounce of pus located about 2.5 inches posteriorly to the external auditory meatus. This abscess was incised, a large area of denuded bone discovered, but no connection with the mastoid could be determined. In spite of treatment this abscess cavity persisted for over two weeks, the bone continuing bare and the discharge of pus profuse. At this time the cavity was filled with bismuth paste, formula No. 1; the external wounds closed almost at once and complete resolution followed rapidly. I may say here that I have never used formula No. 2, No. 1 having always proved satisfactory.

Struck by the results in this case, it occurred to me that it would be a useful dressing for postoperative mastoid wounds. We all know that frequently our simple mastoid operations run a somewhat tedious course of healing of several weeks' duration, and the occasional difficulty of inducing the closure of the sinus when it has become too small to be easily packed. It is in this class that I have had great success in about twenty cases by the injection of the paste. I prefer to wait until suppuration in the middle ear has ceased, then discontinue packing, and inject the sinus without previously having cleansed it. For this purpose an ordinary glass syringe with an olive tip is used.

Formerly I heated the bismuth mixture in a water bath until it could be drawn into the syringe, then allowed it to cool until just thin enough to pass through the nozzle. Where a large cavity with many ramifications is to be filled, this is the best plan in order that all recesses may be filled by the liquid. Where, however, we have a simple cavity I now usually fill the syringe by removing the plunger and packing it with the cold mixture which is not too firm to be forced in a small ribbon from the tip. The tip of the loaded syringe is placed against the opening of the sinus, a little cotton wrapped around to prevent the escape of the paste, and the cavity filled until paste leaks from beneath

the cotton. A plain gauze dressing is applied to retain it. Usually the discharge of pus ceases at once, being replaced by a thin serous fluid. In a number of my cases only one injection was necessary, the external wound closing permanently in a day or two. In the other cases several subsequent injections were necessary at intervals of a few days, but I am sure that the time of convalescence was very materially shortened by this method. It is besides very much more agreeable to the patient than continued gauze packing, practically doing away with all pain. In this respect it is an ideal after-treatment for children who have undergone the simple mastoid operation.

In cases that do not heal at the first or second injection, granulations will form at the edges of the skin wound. These should, of course, be reduced in the usual way by applications of silver nitrate, sixty grains to the ounce, and will soon shrivel up and disappear. I have had no failures from this method, and if there are any such they must be due, according to Beck, to necrosed bone still remaining in the mastoid cavity. A possible danger would be where the sinus, nerve, or meninges are exposed, as paste finding its way between these structures and the walls would probably cause pressure symptoms similar to those produced by a blood clot in the same position.

I have used this dressing in four cases where the sinus or dura was exposed without untoward symptoms, having simply waited until I felt sure that granulations had so closed over the bare areas that the paste could not gain entrance. In two cases the paste passed through the aditus antri into the middle ear owing to too much pressure being used with the heated paste. This is another reason why I prefer the cold paste in these cases, though no harm resulted from its presence in the middle ear, it apparently being soon absorbed. Beck reports similar experiences. He also recommends its use as a primary dressing instead of the blood clot, but with this method I have had no experience, preferring to drain in the usual way for a short time, though I have decreased this period to a week or ten days.

This method was used in only two cases of radical mastoid operation in both of which epidermatization of the mastoid portion of the cavity was proceeding slowly and where there was a good deal of discharge. Bismuth paste was packed into these posterior cavities with the result that the discharge became at once odorless and much more scanty, the bare spaces quickly skinned over, and scabbing ceased.

In eczematous conditions of the external auditory canal packing with the paste has given good results in a number of cases, but these I have not followed up closely. Also in diffuse or circumscribed cellulitis of the canal I am inclined to think that the results are better than those obtained by former methods. Any pus collections should be opened, as they occur, the paste injected into the cavities, and the canal filled. In dispensary cases which we cannot watch closely and where the canal often gets very foul with retained pus, a great deal of trouble and worry is obviated by this method, as the canal stays sweet and clean.

I have used the paste successfully in two frontal sinus cases. The first was a radical operation, though not a Killian, as the entire supraorbital ridge was necrotic when the patient was first seen. Drainage was made through the orbital plate of the ethmoid, the anterior ethmoidal cells being removed and obliteration of the sinus obtained, except for a small pocket above the inner canthus of the eye which continued obstinately to discharge through a fistulous tract in the skin incision. Two injections of paste stopped this in a few days, and there has been no recurrence in the two years since operation.

The second case was that of a lad of fourteen years who presented himself with an orbital abscess of large size, causing great exophthalmos. The Killian incision was made, the pus excavated, the inferior wall of the frontal sinus, which was necrotic, removed, and drainage established through the orbital plate of the ethmoid, the interior wall of the frontal sinus being left in situ on account of its being an acute case. A sinus persisted for some weeks, opening through the middle of the brow. A large quantity of pus was discharged through this as well as through the nose. Injections of bismuth paste very greatly lessened this discharge and relieved it of its odor, and several times the sinus closed, only to reopen. After five weeks' treatment the fistula was still open, though the discharge was slight, when a sequestrum was discovered. A long, thin plate of bone from the lower border of the supraorbital ridge was removed, and the sinus at once closed and has remained so for two years. The exophthalmos gradually diminished but a little still remains.

I have used the paste to advantage in epistaxis resulting from ulcerations of the anterior portions of the septum, by simply injecting the cold paste into the anterior nares and closing them with a plug of cotton. In a number of cases it has slid down through the choana and been ejected—but no harm would come even if the patient swallowed it—and it has been satisfactory in checking recurrent hemorrhage and scab formation. For the same purpose I have used it after both inferior and middle turbinectomies. It does not seem to interfere with drainage, most of it coming away in a short time, and it materially checks the secondary bleedings, infection, and synechia formation. In the case of inferior turbinectomies I have used it mostly in connection with gauze packing or with Bernay tents. In submucous resection of the septum, where there has been undue traumatism resulting in continued scabbing, it is a most useful secondary dressing, reducing the scab formation to the minimum. Beck does not advise it as a first dressing, fearing that some of the paste may be introduced between the flaps and prevent primary union.

There have been no mishaps in any of the cases in which I have used the bismuth paste. In case it is desired to remove it from a cavity that has been filled, this can be done by injecting some olive oil, waiting twelve hours, and then aspirating the emulsified liquid, though I have not been compelled to resort to this procedure, which might be necessary in a case of poisoning by absorption. The danger of poisoning would seem to be remote if reliable bismuth subnitrate is used in the preparation of the

paste, and when it had occurred it was formerly attributed to arsenical contamination. A few such cases have been reported, I believe, in the injection of sinuses, but most of them have happened when large quantities had been placed in the stomach for

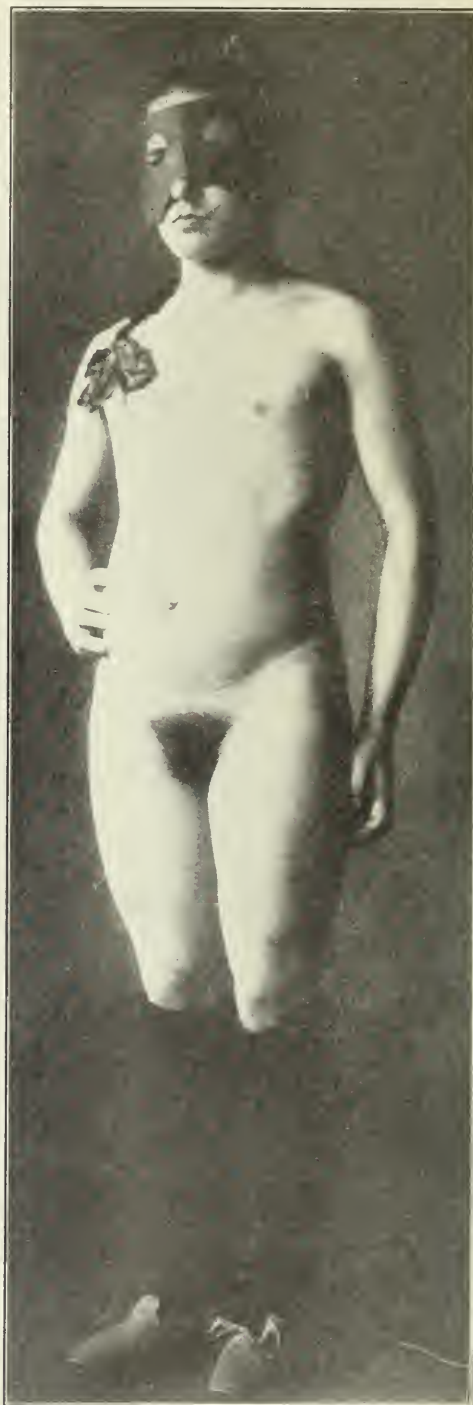


FIG. 1.—An hermaphrodite? (Mills).

x ray diagnosis. For this reason the bismuth subgallate is now being used at the Pennsylvania Hospital in all stomach work.

In some instances the symptoms of nitrite poisoning from the nitrites liberated in the intestines

from the bismuth subnitrate, and in the other few the typical symptoms of poisoning by metallic bismuth have been reported. In case symptoms do appear, the paste should be removed at once.

In view of the low power of absorption in the abscess cavity walls which we are called upon to treat, and the comparatively small amount of bismuth brought into contact with these, I think poisoning from this source must be very rare.

Last winter, at the Pennsylvania Institution for the Blind, for a period of three months, I treated all my cases of chronic suppurative otitis media by filling the middle ear and canal with paste. Joseph Beck had tried this method without obtaining anything special in the way of results, and neither did I. These children I see only once a week, a very competent nurse carrying out the ordinary home cleansing treatment. The treatment by paste injection certainly lessened the discharge and the odor, making syringing unnecessary, but of the ten or twelve cases in which I experimented, in none did it effect a cure or lead to any permanent improvement. It is very difficult or impossible to pack the ear with the glass syringe, as the retained air prevents the entrance of the paste. With a long nozzle ear syringe it may be introduced, however, to the posterior part of the cavity, withdrawing it as the filling progresses, and afterward pressing the whole mass tightly in. The packing is never so tight that the diminished pus cannot easily drain through somewhere.

In this paper I have attempted more to summarize my results than to give a detailed case report, and to bring out the main points of the technique, hoping to elicit discussion and hear the experience of other members of the section in the use of this still comparatively new method.

2032 CHESTNUT STREET.

AN HERMAPHRODITE?

BY WALTER SANDS MILLS, A. B., M. D.,
New York,

Professor of Medicine, Homeopathic Medical College and Flower Hospital; Physician, Metropolitan Hospital, Department of Public Charity.

Several years ago there entered my service at the Metropolitan Hospital a young German girl suffering from epilepsy. The patient presented some genital peculiarities, and it has always been my intention to place the case on record. I neglected to do so at the time, and had nearly forgotten it until recently I came across my notes, made at the bedside, and some photographs that



FIG. 2.—Showing genital, perineal, and anal regions (Mills).

were taken under my direction. I therefore present the case now.

CASE. The patient entered the Metropolitan Hospital, September 1, 1905. She was an apparently well developed and matured girl. She gave her name as a girl; her age as fifteen years; her birthplace Germany; her occupation that of a nurse girl.

The family history was good. She had several brothers and sisters in good health. For several months the patient had been employed as a nurse girl. During the preceding four or five weeks she had had a number of epileptic seizures. On account of these she had lost her position and had come to the hospital for treatment.

Although rather mature and with rather a heavy voice the patient said she had never menstruated. She gave a history of occasional nosebleed, and of more or less indefinite abdominal discomfort.



FIG. 3.—Showing penis shaped organ, occupying position of clitoris.

On examination I found the general conformation that of a male. The height was fifty-six and a quarter inches. The chest and back were entirely masculine in appearance. There was no semblance of mammary glands, simply small nipples as in the male. The chest measured thirty-two and a quarter inches on inspiration and twenty-nine and three quarter inches on expiration.

The hair on the mons veneris ended in a well defined horizontal line, as in a matured woman, and was profuse in quantity. When the patient was placed on her back on the examining table, and with the legs and thighs flexed, and the thighs separated as for a vaginal examination, the entire genital, perineal, and anal regions were found to



FIG. 4.—Showing orifice of urethra and rudimentary vagina through slit in the skin of perineum.

be covered with a large quantity of coarse black hair, as is sometimes found on a hairy man.

In the midst of this, near the pubes, lay a well formed, penis shaped organ. On separating the parts a little this was found to occupy the position of the clitoris. It was one and a half inch long. It had at the end a well developed glans and a long prepuce. There was no opening in the glans. Instead of a frenum, something resembling the labia minora came together on the under side at the glans. There was no trace of scrotum or testicles. As the patient lay exposed the covering of the penislike organ was skin. On lifting the organ up, the covering of the under side was more like mucous membrane, and the exaggerated labia minora, or what resembled them, were of mucous membrane. There was no sign of labia majora.

Below the root of the penislike organ was a slit

in the skin of the perineum about an inch long. By stretching this opening as far as possible, the orifice of the urethra could be seen at the depth of about an inch. To this point two fingers could be inserted. There was a band or constriction also at this point which permitted of the insertion of only one finger. On passing the index finger as deeply as possible, there appeared to be ample room beyond the constriction. Something that felt like a small cervix, without an opening, could be palpated. A rectal speculum four inches long could be inserted to its full length, but could not be spread open when in place. The lining of this rudimentary vagina was perfectly smooth mucous membrane and contained no rugæ like the normal virgin vagina.

I was unable to make further studies on the case because the patient was deported after a few days in the hospital, and returned to Germany on account of the epilepsy. It would have been interesting to have learned something of the sexual life of the individual.

This is the only case of apparent hermaphroditism I have ever seen, and the proper sex can only be a matter of speculation. The patient had a woman's name, and had been brought up as a girl. She had long black hair which she wore in a braid down her back like a girl of her age. The anatomical characteristics were as described.

324 WEST EIGHTY-NINTH STREET.

THE TREATMENT OF PELLAGRA.*

Its Present Status.

BY GEORGE M. NILES, M. D.,
Atlanta, Ga.

I regret that in this study I cannot build up a logical therapy upon a proved etiology, nor can I base my conclusions upon constant and distinctive pathology.

These momentous questions are still *sub judice*, though the number of eager brains and willing hands now delving at this problem afford an earnest of its solution in the not distant future.

While, of necessity, we are waiting a definite and convincing answer to some of these etiological and pathological inquiries, the pellagrins are at our doors and within our gates clamoring for relief. They care not for the claims and counterclaims of the zeists and antizeists; they never heard of Sambon and his protozoan theories; and they are as little concerned for the sociological issues involved, as for the forty-seventh problem of Euclid. What they desire, nay *demand*, is therapeutic action; and the wavering theorist who hesitates to minister to these sufferers because all is not clear, as well as the dismal pessimists who see nothing but defeat and death—these should take their doubtful talents into other fields, leaving this battle to the resolute and courageous spirits who are willing to fight, even if much of the way is as yet shrouded in darkness.

*Read at the Triennial Conference for the Study of Pellagra, Columbia, S. C., October 3 to 5, 1912.

I desire in this connection to submit a line of treatment, embodying suggestions from a number of observers of large knowledge, and built upon my own experience in the care of considerably over three hundred cases. This seems to be yielding satisfactory results, which cannot be explained away by the *post hoc* reply of possible critics, but afford a reasonable inference of *propter hoc*.

This method of treatment rests upon the four basic supports of hygiene, diet, drugs, and hydrotherapy, the whole of which I endeavor to permeate and leaven at all times with a hopeful and helpful psychotherapy.

The hygiene of pellagra is similar to that of other exhausting diseases, with two exceptions. Any form of alcoholic intemperance seems to exert a more malign effect than in any other malady. While an occasional alcoholic stimulant, well diluted, may find a questionable place in conditions of extreme weakness, I should hesitate to give a favorable prognosis in any pellagrin of convivial habits. I have on more than one occasion seen death quickly follow an alcoholic debauch in apparently convalescent patients.

Another hygienic precaution is the avoidance of sunlight, or even a bright light during the spring and summer months, to which may be added the danger of getting overheated. The sun's rays, either direct or indirect, possess a peculiarly irritating effect for the skin of pellagrins, the actinic power being most marked in the early spring. I have many times observed a rekindled erythema follow an exposure of less than half an hour.

A short time ago, a female pellagrin under my care went in the kitchen in the temporary absence of the cook, and prepared a single meal. She had shown no dermal signs of the disease for over two months, yet on the next day an acute erythema of the hands and face developed.

Pellagra flourishes in hot weather, and languishes in cold weather, and whenever it is practicable to place these sufferers in a cool environment, and keep them in it, they fare much better.

The dietetics are somewhat different from that of other diseases with disordered digestion, in that the gastrointestinal manifestations are not a pathological entity, but the expression of a centralized irritation, plus the elimination of toxins through the gastrointestinal mucosa.

Until the theory is exploded that pellagra is due to some toxic substance in spoiled corn or corn products, I feel that we are in duty bound to give our patients the benefit of the doubt by excluding such articles from the diet.

The early diarrhea, being mainly of central origin, and to an extent compensatory, does not require a too limited regimen, nor does such seem to help the disordered bowels. The woody vegetables, and those yielding a large amount of residue, are mechanically contraindicated at any time diarrhea is present, but care should be exercised that they are replaced by other nourishing articles. It seems that all along the course of the disease the flesh proteins are specially well borne, and even in those cases where there is much gastrointestinal irritation they agree better than in a like amount of irri-

tation from other causes. Tender broiled steak or roast beef or mutton may be given once or twice daily; or, if the mouth is too sore to chew, either scraped beef or that ground in a sausage mill is suitable. This also applies to the white meats. Eggs are generally permissible, though in flatulent conditions it is well to use only the whites, which may be prepared in various appetizing ways, limited only by the ingenuity of the nurse. Sweet milk is valuable when it agrees, but unfortunately many pellagrins show an idiosyncrasy against it. Flatulence frequently follows its ingestion, and in some patients the stomachs furnish enough rennin to coagulate the milk promptly, but are tardy in disintegrating the curds, so there is present a sense of weight and discomfort in the epigastrium. Peptonizing the milk generally obviates this, but very few pellagrins relish peptonized milk.

The custom of certain medical wiseacres blindly to advise the daily consumption of fabulous amounts of milk and eggs, without investigating the patient's digestive ability, "though it make the unskillful laugh, cannot but make the judicious grieve."

Fresh buttermilk, or the artificially soured milk, or lacteal champagne, is useful, seldom upsetting the stomach or intestines. Where constipation is in evidence, oatmeal, tender vegetables in purée form, thoroughly baked Irish, not sweet potatoes, or cereals with but little sugar, will aid intestinal peristalsis. During the whole course of pellagra the invalid should be nourished to the limit of assimilation, and in most instances the gastrointestinal tract will "stand for" and care for more aliment than when similarly inflamed from other diseases. The problem of bodily upkeep should never be disregarded in pellagra.

I am sorry to observe that some of our nihilistic *medicos* have included pellagra in the list of maladies unresponsive to drug therapy, and from their limbo of gloom we catch sundry reverberations of discouragement and ridicule aimed at the cheery optimists who can look beyond "scar tissue" and discover some of Nature's compensatory powers. The narrow and prosaic mentality that can discern no ray of hope in the presence of trophic change or scar tissue would deny a one legged man the right to walk with a crutch or artificial limb, or a congenital myope the privilege of corrective glasses.

Permit me briefly to mention the principal drugs I now employ. Hypodermically I use the ampoules of iron arsenite solution (sixteen minims) and sodium cacodylate solution (three quarters of a grain) on alternate days, injecting them under careful aseptic precautions, and giving one daily for about two weeks. After that I give an ampoule every second day, still alternating them. After the acute symptoms seem to be controlled, I continue giving two injections weekly (still alternating) for several months. Frequently, when there is marked anemia, instead of the arsenite of iron, I use one c. c. ampoules of green citrate of iron, each ampoule containing two grains of the drug. I do not approve of the very large doses of sodium cacodylate, though some clinicians favor them.

Internally I use a combination of potassium

iodide and Fowler's solution, in the proportion of five to three. Beginning with five drops in water, three times daily after meals, each day the dose should be increased one drop, until symptoms of arsenical saturation are manifested. This generally appears when twenty to thirty drops are being taken. When there is puffiness about the eyes on arising, I stop the drops for one day, beginning again at the minimum dose of five drops and increasing as before. This procedure I continue until the eruption and sore mouth are abated, and then keep it up in eight to twelve drop doses for several months. Should there arise a gastric or intestinal intolerance, a complication occasionally in evidence, it may be necessary to reduce the proportion of Fowler's solution to one or two in eight instead of three as originally suggested.

For the frequent diarrhea I have obtained satisfaction from bismuth betanaphthol and resorcin, given with milk of bismuth as a vehicle. This failing, I give tannigen, protan, or heavy doses of bismuth subgallate, or, as a last resort, powdered opium.

For the infrequent constipation, either castor oil, phenolphthalein, or enemas will serve, drastic cathartics being inadmissible.

For the sore mouth, a solution of thymol, one grain to the ounce of water, a little alcohol being used as a solvent, will generally prove sufficient; also a twenty-five per cent. solution of boroglycerin is helpful. For the aphthous spots in the mouth or on the lips or tongue, an application of silver nitrate (twenty grains to the ounce of water) is in most instances efficacious.

I have ceased using stomach lavage, except in rare instances, where a great excess of sticky mucus is constantly arising.

The simple erythematous rashes on up to sloughing conditions of the hands and feet, may be benefited or cured by the bland ointments, such as the oxide of zinc ointment, or a five per cent. ointment of boric acid. Raw or weeping surfaces are soothed by a lotion of calamine and oxide of zinc in lime water, to which may be added a little rose water or other pleasant adjuvant.

For the intense burning of the hands and feet, so often and bitterly complained of, either ice cold compresses of a mild solution of bichloride of mercury, applied at frequent intervals to the unbroken skin, or baths of hot mustard water, will afford marked relief. Two or three grain doses of acetanilide, when the heart action is fairly good, will greatly aid the various neuralgic pains, while brisk rubbing with petrolatum, to which has been added capsicum or menthol, is indicated for the pseudorheumatic pains in many joints and muscles.

After the erythema has subsided, leaving a rough and harsh surface, alcohol rubs at frequent intervals will facilitate the disappearance of this horny layer.

I do not consider that salvarsan has "made good" in the treatment of pellagra, though some still laud it in high terms.

Transfusion of blood from either healthy donors or healed pellagrins is still an available method in selected cases. Some remarkable improvements have followed its use, especially as performed by

Dr. H. P. Cole, but its difficult technic, as well as other obstacles, will probably prevent its general employment.

Drainage of the gallbladder, appendicostomy, and other surgical "stunts" have their advocates, but will hardly prove popular, the pellagrins generally being of the opinion that they would rather bear those ills they have than fly to others that they know not of.

Special treatment of the purely mental symptoms will not be covered here. Should such predominate, deepening into melancholia, or lapsing into dementia, the patient should be placed in an institution for the mentally sick, as these unfortunate invalids are subject to such varying moods, suicidal and other, that it is often impracticable safely to care for them at home.

The effects of hydrotherapy in pellagra have in many instances proved so beneficial that some form may with propriety be invoked in nearly every case. Hot or cold baths, simple or medicated douching, packs, moist or dry rubs, accompanied by special massage, have established their worth. These bring about increased oxidation of the tissues, more rapid elimination, greater metabolic activity, sharpened appetite, improved digestion and assimilation, and a noticeable tonic effect on the whole living organism.

Explicit directions for the different baths cannot be included in a brief paper, but will be found *in extenso* in Hinsdale's excellent work on hydrotherapy. I might also say that many of our sanitariums now have well equipped departments for hydrotherapy, with expert attendants, and whenever possible it will be wise to aid in this manner Nature's efforts to eliminate this intangible, but no less consuming toxine.

Lastly, I wish to discuss that refinement of treatment, psychotherapy, for in this we have an agent sadly neglected. Just now, when there seems to be prevailing in our country a widespread pellagrophobia; when the unhappy victim finds most hospitals closed to him, while he is *persona non grata* in hotels and boarding houses, and where even nurses seem alarmed at its mere mention, can we wonder the knowledge of its presence fills the sufferer with dire forebodings? Much of this phobia is due to unwise words of physicians, perhaps lightly spoken, but which make a deep and unfavorable impression upon the mentality of the already perturbed pellagrins.

Recently there came under my care a well nourished young man with a well marked case, who informed me that his family physician, upon seeing the slight erythema upon his hands, remarked in an ominous manner, "Well, old fellow, you've got it." That was enough thoroughly to demoralize this patient, who at once began to conjure up images of pain and sorrow; who saw himself a pariah and an outcast with not a ray of hope ahead. He was thinking that perhaps it would be best with his own hands to shuffle off this mortal coil, and while in this frame of mind I saw him.

I first assured him that his family and friends incurred no danger by his presence. I next told him that in all probability his case was curable, and by these assurances, given in a cheerful and con-

fidant manner. I gave him energy and pluck to make a fight, which he had previously considered hopeless. Though pellagra is at all times and in all phases a serious malady, we should be slow to give an unfavorable prognosis, except in extreme cases.

"Apparently some regenerations may take place in diseased organs of highly organized type, if the patient's condition is kept up to the highest point of nutritive efficiency." (Walsh.) I have in mind a young lady, who is now apparently well, who, two years ago, seemed in a hopeless condition as far as my judgment indicated. This taught me a salutary lesson. Certain compensatory influences may be set in motion and kept so by drugs and other material agencies, but oftener they can best be sped along by keeping the body built up and the mind cheered for a prolonged period, so that new centres may be educated, while Nature is getting accustomed to the useless ones.

I have in several instances seen pronounced psychoneuroses seemingly arise from discouragement, from sluggish conditions developing in the bodies as a consequence of lack of hope, and from denial of air and exercise accompanying the settled gloom of despair. In pellagra, as many other complicated disease pictures, there are a multiplicity of intercurrent ills coming up at frequent intervals. Many of these can promptly be alleviated, and by so doing the physician can produce in the sufferer a much more sanguine frame of mind, even if the main lesion is untouched. As one writer has fittingly expressed it, "Though nothing can be done for the disease, much can be done for the patient." It is along this line that the Eddyites, the mental healers, and the quacks get their occasional spectacular results.

They do not admit the incurability of any ill, but by cheerfully promising a cure, by relieving some minor discomforts, and by replacing morbid introspection with novel sensations, some invalids find their lot so much more tolerable that they know they are better, if not cured. It is also reasonable to believe that by suitable suggestions we can delay, if not arrest nerve degeneration, for a buoyant body and hopeful mind can present a firmer bulwark against the inroads of cellular destruction.

When assuming the management of a case of pellagra, the patient should be informed that very many have been cured, and that, according to the best authorities, he need not be isolated nor cast out from those he loves. He also may be assured that strict attention to hygienic and dietetic precautions, plus other treatment instituted, will keep his body in the highest state of efficiency and will greatly brighten his prospects. While taking cognizance of the numerous and easily managed intercurrent ills, so as to promote his comfort, we should at all times endeavor to instil a spirit of courage and optimism, so that the higher psychic centres, untrammelled by fears or obsessions, may exert their best influences over the lower centres, vegetative and otherwise.

It will demand both effort and tact on the part of the physician to keep this up, but the results will more than repay him. Even should signs of serious psychoneuroses be evident, much can be still

accomplished by cheerful suggestion and warm hearted encouragement.

I am anxiously seeking more light in the treatment of pellagra, and should coming discoveries show me wherein I err, I shall gladly cast aside my old therapy for the new. At present, however, I feel that the line of treatment herein advanced offers as much or more promise than any so far brought forward, and I lay to my soul the flattering unction that my methods are justified by tangible results and worthy of consideration.

920 CANDLER BUILDING.

RHINOLOGY AND LARYNGOLOGY IN GENERAL PRACTICE.*

BY WILLIAM FERGUSON, M. D.,

New York,

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It is not the intent of the writer to go extensively into this subject, as that would constitute a textbook, but rather to bring to your attention a few cardinal points which I hope may assist you in diagnosis and treatment. This is a very wide subject and only a few of the conditions can be gone into with any detail.

Can the general practitioner benefit himself in any way by the more careful consideration of the conditions present in a patient's nose and throat, whether his complaints refer to those special regions, or, in the case of recurring obscure symptoms, that previous treatment has failed to relieve? In a climate such as we have, which predisposes so much to catarrhal conditions of the nose and throat, I think he would add greatly to his own success and his patient's comfort and confidence.

The equipment consisting of two screw top seats, a tongue depressor, nasal speculum, two or three slender applicators, two laryngeal mirrors, a head mirror, an adjustable gas bracket fitted with an argand burner and McKenzie condenser, some absorbent cotton, a four per cent. solution of cocaine and solution of epinephrine, simple and inexpensive. The time occupied in making such examinations is trifling, considering the insight one gains into troublesome night coughs, asthmatic attacks, recurring quinsy, nausea, obscure neuralgias, recurring earaches, and many other distressing symptoms daily brought to the attention of the physician.

In examining these regions you will find the mouth and pharynx the easiest. An unruly tongue can always be controlled by applying the tongue depressor evenly and using gradual but firm pressure; if placed too far back it causes retching. The larynx and nose are next in order of difficulties, and last comes posterior rhinoscopy. However if you succeed in obtaining a view the picture is less complex than when viewed anteriorly.

Considerable can be learned from the teeth. With the upper centre incisors placed in a V shaped position, the molars lying in a straight line instead of a gentle curve, and a high vaulted palate, adenoids are indicated in children.

*Read before the Bronx Medical Society, March 13, 1912.

A suppurating lower wisdom tooth may explain a recurring quinsy. Always examine the adjacent mucosa at this point, as here in specific cases we frequently find a small ulcer. A carious bicuspid or molar tooth may produce mucopurulent nasal discharge from infection of the antrum, or may produce Ludwig's angina, recognized as a hot, brawny induration in the floor of the mouth due to *Streptococcus pyogenes aureus*. Again such a suppurating tooth may cause much harm by keeping up continuous nervous irritation and produce a kind of chronic toxemia through the swallowing of septic pus.

It is the little things we are likely to overlook. I remember a patient with suspected tuberculosis who came to my notice complaining of loss of weight, vague stomach symptoms, loss of appetite, and raising blood stained mucus on getting up in the morning. My examination of the lungs and larynx was negative, but I found several suppurating teeth, one of which was full of granulation tissue and surrounded by spongy gums. The patient's habit of sucking with his tongue produced the blood stained mucus. The removal of the offending teeth cleared up the case.

Anteriorly, under the tongue, we may find several conditions. A tender, swollen portion of mucous membrane arching upward indicates an enlarged sublingual gland; a firm mass on one side of the frenum, a salivary calculus, and an obviously cystic swelling a ranula.

An elongated uvula may account for nausea and distressing night cough. Before you take any surgical steps for the relief of this condition, it is advisable to treat any nasopharyngeal catarrh present, as this may be responsible for a relaxed velum palati. It may be necessary to relieve the portal circulation. Where we see the soft palate hanging far forward and sluggish in its movements, we may expect to find adenoids, polypi, or posterior hypertrophies of the turbinates, or this condition may be due to peripheral neuritis following diphtheria.

The most important condition of the nose and throat calling for early diagnosis is syphilis. This disease is at times so insidious in onset, and the patients are so indifferent to local discomfort, that perforations, adhesions, and permanent scarring and damage may be done before the condition is recognized and treated. You are not likely to overlook the dusky red injection of pharyngeal syphilis, as it is accompanied with considerable dysphagia, but the shallow symmetrical reniform ulcers on the tonsils, which are among the earliest and most constant signs of secondary syphilis, are often quite painless and are easily overlooked.

The primary sore is rarely found in the nose, more frequently in the mouth. When on the tonsil it may be difficult to distinguish it from diphtheria or Vincent's angina. It's being only found on one side, presenting a yellow, dirty, sloughing appearance with early enlargement of glands at angle of jaw, the tonsil itself always very inflamed and enlarged, may aid us in diagnosis.

The secondary syphilitic lesions in the nose are not easily distinguished. A persistent coryza, which does not exhibit as much discharge as the ordinary coryza, and one nostril more deeply congested than

the other, lead us to suspect syphilis; mucous patches may occur, but are rarely seen.

In the pharynx the mucous patches may be seen on the velum palati, pillars of the tonsils, and the tonsils themselves; at first they have a slightly raised opalescent appearance. You may overlook them in a strong reflected light; it is best distinguished by daylight. Later they may assume a dirty white appearance, as though the mucosa had been touched with silver nitrate; they are distinct and do not blend with the surrounding tissues. You will discern a fine injected zone around each patch. On either side at the base of the uvula is a favorite seat, and here they frequently give a notched appearance to the palate. These mucous patches may be seen about the sixth week and as late as two years after infection, also with the tertiary lesions; and they tend to recur.

Early tertiary manifestations in the nose may be suspected when the patient complains of stuffiness on one side which does not intermit, and is accompanied with pain, worse at night. On examining such a nose one side is found to be more deeply congested and swollen than the other, and this swelling is practically uninfluenced by cocaine. In the pharynx tertiary lesions are seldom discovered before damage is done. If seen early the deeply congested elastic swelling is to be distinguished from other conditions by the insidiousness of onset and lack of acute symptoms or enlarged glands.

As these conditions are simply local manifestations of a constitutional disease, we must look for secondary and tertiary symptoms in other parts of the body and, if in doubt, do a Wassermann test. When we see a sore mouth or throat, the cause of which is not obvious and which resists ordinary treatment, we must always think of syphilis. One might parody the old axiom of the surgeon, "When in doubt operate," by saying "When in doubt treat for syphilis."

In rheumatism or gout we may have a painful throat without any sore being discernible. Here the pain probably arises in the muscles of deglutition or aponeurotic structures of the pharynx. Nevertheless, such an error is excusable, for the drug treatment of most diseases is vastly less important than that of syphilis. In a normal throat we see the faucial tonsils lying between the pillars, on either side, small in size, and not protruding beyond the medial line of the pillars; the posterior pharyngeal wall looks smooth and moist.

Acute lacunar tonsillitis is readily recognized, but some cases due to mixed infection, are difficult to distinguish from diphtheria, except by bacteriological examination. Aside from local signs the pronounced asthenia of diphtheria is very suggestive.

Circumtonsillar abscess is probably the most painful affection of the throat, and at times the confidence of your patient may be strained by ineffectual attempts to give relief. The use of salicylates internally, a mouth wash of concentrated bicarbonate of soda solution to remove sticky mucus, and a pad of absorbent cotton externally, at the angle of the jaw, is about all one can do to give relief until pus forms. To reach the pus, select a point three eighths of an inch external to the medial border of the anterior pillar, and slightly above the

line of junction of the uvula and soft palate: a knife inserted at this point and carried downward will invariably demonstrate pus, even though the pus be burrowing backward. Should the case be that of an adult and rather protracted and subacute in character, and you have made your incision properly with no results, you must bear in mind the possibility of malignant growth.

Chronic hypertrophied tonsils with unhealthy crypts are the every day problem. Are they to be cut off or enucleated and what are the indications? In young children the skilled operator may remove the entire tonsil with the tonsillotome, but in the adult this is not always possible, portions of the tonsils with unhealthy crypts remaining to work further mischief. Complete enucleation I believe to be the proper procedure. The tonsils may be so hypertrophied and diseased that no doubt arises as to their removal, but frequently the tonsil is imbedded and greatly hypertrophied backward and downward and the anterior pillar so closely applied that no tonsil protrudes medially. One obtains a much better idea as to the character of the tonsil by palpation.

When the tonsils produce ear symptoms, reflex cough, mouth breathing; are constantly subjecting the patient to attacks of tonsillitis; where we have enlarged tender glands in the neck, where the tonsil is submerged, small, with diseased crypts, and associated with attacks of laryngitis; where follicular pharyngitis is present to the exclusion of adenoids, nasal disturbance, and gout; and when we have recurrent, acute, articular rheumatism following acute tonsillitis; I believe the tonsils should be removed.

One important state, I have omitted, as an indication for the removal of tonsil is mental delinquency. This is now claiming the attention of institutions for boys of this class, and I have had the opportunity in my service at the House of Refuge of following such cases and noted the remarkable improvement obtained.

Adenoids are very "popular." All aural symptoms in children, earache, deafness, otorrhea, should excite your suspicions and for the same reason snoring, croup, snuffles, and hoarseness call for immediate investigation of the nasopharynx. Deformities of the jaws and irregularity of the teeth have been referred to, but deformities of the chest are also associated with adenoids. The simplest and most direct method of diagnosis is by palpation: Holding the child's head with the left hand and pressing in the cheek to prevent being bitten, pass the right index finger quickly up behind the palate and you will readily note the difference between the smooth, firm, normal vault and the soft velvety feel obtained when adenoids are present. It is always advisable to protect the finger with a rubber tip, as there may frequently be a syphilitic ulcer on the posterior surface of the soft palate which may produce no symptoms until the palate is perforated.

It is scarcely necessary for me to advise the removal of adenoids, but just one point to bear in mind: After their removal, if hoarseness persists, examine the larynx for papilloma, a not infrequent occurrence in children.

In cases where the patient complains of a lump in the throat, sticking pains about the root of the tongue, cough, and seems unduly nervous, the laryngeal mirror may show an enlarged lingual tonsil, lying between the epiglottis and the circumvallate papillae; suppurating teeth may be the cause.

Mucopus or pus bathing the posterior pharyngeal wall in children indicates adenoids, in adults supuration of the posterior nasal sinuses.

As to atrophic changes in the pharynx you are probably all conversant with its dry, glazed, varnished appearance due to very chronic suppuration in the nose. You may see in delicate anemic women, a dry pharyngitis due to collapse of the erectile tissue in the nose, but the absence of crusting and suppuration will distinguish the two classes of cases. In diabetes we get a troublesome, dry, inflamed pharynx; the examination of the urine will explain this condition.

In taking up the study of conditions found in the nose, the physician must ever keep before him its physiological function. We may consider it the laboratory in which is prepared the food for the lungs. It warms, filters, and moistens the inspired air, and anything that interferes with its function, either disease or operation, is of serious import. The functioning mucosa includes the area covering the lower turbinates and the lower and the posterior border of the middle turbinate, so in general practice the physician may satisfactorily confine himself to these regions and the adjacent septum.

On viewing the nose externally, we may notice that it appears broadened at the root, that the eyes are congested and watery, and the patient complains of weak sight; this would suggest ethmoiditis. In young children we may have a protrusion of the eye, or a fistula above the inner canthus, indicating ethmoid abscess. When the bridge of the nose looks sunken, the tip soft and can nearly be flattened against the face, we have old suppuration present. With the reverse picture the nose narrow, tip unduly firm, and entrance slightly blocked, we may have lupus.

Stiffness of the nose, mouth breathing, with dry tongue and lips, headache, nausea, and hoarseness are probably due to hypertrophic or hyperplastic rhinitis associated with septal deflection and spurs. On examining such a nose you may distinguish the deflection of the septum, but mistake the spur for the floor of the nose, so closely is it applied to the turbinate. If you use your cocaine spray and again examine, you will readily make out the spur running backward along the vomer. Such error may be avoided if you remember that in the position you place the patient's head for examination, the floor of the nose has a downward and backward direction. Such conditions as mentioned can be relieved only temporarily by astringent solutions and sprays. Permanent relief can be obtained only by complete removal of the spurs and deflection. Many of our chronic, dry, catarrhal conditions of the middle ear, with their annoying tinnitus and deafness, are associated with these nasal deformities. Should the patient have any latent or incipient tuberculosis, nasal operations are contraindicated, unless obstruction calls for immediate relief.

One of the most frequent conditions you are

called upon to treat is epistaxis; it may be of local or constitutional cause. The most frequent situation of the bleeding point is quite within reach on the lower and anterior surface of the septum. Usually after clearing out the clots the application of hydrogen peroxide or epinephrine will control the bleeding. It is advisable later to cauterize the bleeding point.

Probably the most distressing disease and for which little can be done is atrophic rhinitis. You are all familiar with the offensive discharge and crusts of this disease, the entire interior of the nose at times being hidden by them. I will not go into the symptoms, you cannot mistake them; but just a word regarding treatment. Keep the nose clean. Sprays are no good; prepare a powder, one part of salt, two parts bicarbonate of soda, using one teaspoonful of this powder to a pint of water. Instructing your patient to bend his head downward horizontally to the floor, keeping his mouth open, syringe the nose thoroughly with a piston or fountain syringe. Only such a method will cleanse the nose of all offensive material. After cleansing you may apply antiseptic pastes or bismuth ointment, grains twenty to the ounce of petrolatum, or some medicated liquid petrolatum. In this way you may keep your patient fairly comfortable.

It is understood I am now speaking of simple atrophic rhinitis to the exclusion of atrophic rhinitis due to syphilis, lupus, or suppurative accessory sinusitis, from which conditions you must make your differential diagnosis. In some selected cases, where the sinuses have not shown evidence of involvement, I have obtained most satisfactory results by operation, removing spurs and deflections. The new circulation thus established evidently revives and invigorates the entire mucosa. Some of these cases I have reviewed after a lapse of over a year and found no return of pus, crusts, odor, dry throat, or laryngeal trouble. This paper will not permit me to go more deeply into this subject, but I am confident that relief can be given in early selected cases by operation.

Frontal headache following influenza, with feeling of stuffiness or pressure about the root of the nose, frequently indicates frontal sinus disease. Persistent headache about the root of the nose and over the eyebrow should draw your attention to the head of the middle turbinate bone, which you will probably find enlarged, of granular appearance, and pressing against the septum. Here you have ethmoiditis. These patients complain of an excessive nasal discharge mostly mucous, and frequent colds, during which the discharge contains pus, the discharge going backward into the throat as well as forward from the nostrils.

Polypoid growths of a bluish gray color, which may be found protruding into, or blocking the middle meatus may explain obscure asthmatic attacks and laryngitis.

The most common form of ulceration in the nose is the small traumatic ulcer on the anterior and lower portion of the septum, which is generally associated with the too frequent use of the finger nail to remove a nasal crust. We may have the syphilitic ulcer due to breaking down of a gummatous de-

posit on the vomer. The tuberculous ulcer is more frequently found on the cartilaginous septum.

A vascular looking mass at the anterior nares is suggestive of sarcoma.

In anemic, scrofulous children, when your attention is called to snuffles, an irritating nasal discharge, poor appetite, and a tendency to sleep a great deal, always take the temperature and examine the fauces, as nasal diphtheria may come on very insidiously and the patient become septic before the condition is recognized.

In a short paper on such a broad subject much must be omitted and what is reviewed can only be done very superficially. I hope, however, the suggestions made here may encourage you to study these regions as a routine practice.

40 EAST FORTY-FIRST STREET.

INCIPIENT TUBERCULOSIS OF THE LARYNX.

Submucous Cauterization as a Method of Treatment.

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Of all the infections of the upper air passages (excluding the various forms of tonsillitis), tuberculosis of the larynx is the most frequent as well as the most painful. Statistics vary, but conservatively estimated about thirty per cent. of all cases of pulmonary tuberculosis present some manifestation of the disease in the larynx, and often the clinical picture of phthisis is entirely altered, and for the worse, by the changes which have taken place in the mucous membrane and deeper structures of this organ.

It is my intention to call the attention of the profession to a method of treatment successfully pursued by myself while assistant on the Vienna nose and throat clinic of Professor Chiari, which has healed from seventy to eighty-five per cent. of the cases in which it was applied. The method consists of submucous cauterization of the diseased tissues, in a manner subsequently to be described, and while not original to the Vienna clinic, it has not appeared, to my knowledge, in any of the literature on the subject, and the good results obtained justify its recognition as a valuable method of procedure in combating this important and widely prevalent disease.

PATHOLOGY.

The tubercle bacillus, after penetrating the epithelium of the mucous membrane, produces first, as in other parts of the body, a proliferation of connective tissue cells in the submucous layer, which quickly are transformed to giant and epithelioid cells, and gathering together form nodules or miliary tubercles, which are surrounded by an area of small celled infiltration. By this process of aggregation of tubercles results the tuberculous infiltration, and after caseation or fatty degeneration of the tubercle has occurred, as a rule the overlying mucosa deprived of its blood supply, necroses and the tuberculous ulcer is produced.

The most frequent site of this process in the

larynx is the posterior end of the vocal cord, and the interarytenoid space, less often the false vocal cords, the aryepiglottidean folds, and the epiglottis. The first sign of its presence on the posterior wall consists of thickening, which may be diffuse or circumscribed, and we may find small nodules the size of the head of a pin, a well defined infiltration, or a cone shaped tumor projecting into the lumen of the glottis, reaching forward as far as the middle of the true cords, interfering mechanically with the motor functions of the larynx, so much so as frequently to render the operation of tracheotomy necessary. On the posterior wall the infiltration is usually circumscribed; on the false cords and aryepiglottidean folds it is diffuse. And examination reveals a unilateral sausage shaped swelling, whose surface is nodular and irregular, which projects sidewise into the lumen of the larynx and often shows a sagittal crease, produced by the false cord of the other side marking the location of future ulceration. When the infiltration is limited to the region between the true and false cords, we may see a polyplike mass, drawn into the glottis and subglottic space by inspiration, and expelled by expiration; the so called prolapse of the sinus of Morgagni, which only with difficulty is distinguished from a soft fibroma. Tuberculosis of the larynx may also manifest itself as pale granulations or papillary excrescences, most often seen in the retiring angle between the true vocal cords, and often exhibiting an oscillatory movement in the respired air.

Ulceration may start as such or be the end result of caseation or fatty degeneration of an infiltrate and the necrosis and sloughing of the overlying mucosa. When ulceration is present, the subjective symptoms, before slight, increase in severity. There is more or less inflammatory reaction in the adjacent tissue, the whole laryngeal mucous membrane may be swollen and red, secretion is increased, and a tenacious mucus clings to the true cords, which are often split by a longitudinal fissure into two hypertrophic nodular folds. Edema frequently appears and can without involvement of deeper structures give alarming symptoms of stenosis. The tuberculous ulcer has a characteristic appearance; its edges are thin, irregular, undermined, and have a peculiar nibbled look, presenting at times long, pronglike processes. A rather large or a diffuse infiltrate can undergo necrosis at several points simultaneously, and small ulcers, spreading out and becoming confluent, with small miliary nodules on their floor and in the neighboring mucosa, are pathognomonic. The breaking down of deep lying submucous infiltrations gives rise to crater shaped ulcers.

A rare if not uninteresting form of incipient tuberculosis of the larynx is a unilateral catarrh. The simple reddening of one vocal cord should at once direct the physician's attention to the patient's lungs, and further observation of the affected cord usually reveals, some weeks or even days later, a slight superficial ulceration.

SYMPTOMS.

The symptom *par excellence* is hoarseness, which may be sudden in onset and intermittent, or may develop gradually and be continuous. It is caused

principally by the mechanical interference with the closure of the larynx, due to a tumor, infiltration, or granulation on the posterior or lateral wall, or it may be due to swelling of the cords or to ulceration, causing pain and reflexly inhibiting the movements of coordination. Ankylosis of the cricoarytenoid joint, and the weakened condition of the intrinsic muscles of the larynx, which exhibit different stages of degeneration and atrophy, and the accumulation of secretion contribute to the same result. Irritability and tiredness of the voice, i. e., inability to use the voice over a moderate period of time, is a suspicious symptom. A complete loss of voice as one sees in severe forms of dry catarrh never occurs at this stage.

Spasmodic attacks of coughing are partly due to the associated pulmonary condition, but are most frequently seen in those cases where there are long, toothlike, freely movable granulations, which float about in the respired air and are brought into contact with the mucosa of the glottis and subglottic space.

Pain is not present until ulceration occurs, and depends largely upon the extent as well as the situation of the former. Ulceration of the epiglottis causes the severest dysphagia, and next in importance are the ulcers of the posterior wall, which may extend back to the anterior wall of the esophagus. Involvement of the cords, particularly the anterior part of the true cords, gives rise to little discomfort. The pain may at times, in laryngeal ulcers, be referred to the ear, owing to the communication of the auricular and superior laryngeal branches of the pneumogastric nerves. Different paresthesias are occasionally complained of, such as feeling of a ball in the throat or a scratching sensation or of a stabbing pain, which, however, has no definite relation to the lesions present.

DIAGNOSIS.

The diagnosis in most cases can be made by the appearance of the lesions described above, and as a general rule, I have found that a thickened pachydermatous patch in the interarytenoid space is very likely to be tuberculosis; *if there are demonstrable lesions in the lungs, it is tuberculosis*. In doubtful cases, without pulmonary signs, it is wiser to remove a small section for microscopical diagnosis, before proceeding to more radical measures, or tuberculin may be employed, looking for a local reaction, as increase in a unilateral redness or swelling, as well as the general one of fever and malaise. Tubercle bacilli may also be found in the sputum, when signs of changes in the lungs are lacking. The general appearance of the patient, the history, and often the anemic condition of the palate, as well as of the throat in general, are of moment.

Occasionally a diffuse infiltration, spread along the entire extent of one vocal cord, resembles closely the thickening which follows a long standing catarrh, but its unilateral disposition, the history, and the pulmonary condition point to the diagnosis. The differentiation between a beginning tuberculous infiltrate and a gumma is often difficult. In the latter, however, the mucous membrane of the larynx is reddened and swollen, there is more subjective disturbance, the pharyngeal mucosa has an angry appearance, and often distinctive signs of

syphilis in the nose, palate, or pharynx, such as perforation of the bony septum or palate, extensive ulcerations, or cicatrices are present. The most frequent site of a gumma is on the posterior part of the false cord, in immediate proximity to the vocal process; a beginning infiltration, on the other hand, is most often in the interarytenoid space or on the true cords, and is a multiple lesion, i. e., is often accompanied by superficial ulceration on the cords further forward, while a gumma is single. The Wassermann reaction in the therapeutic test of mercury and iodides is, in obscure cases, particularly in those cases where both infections are present, decisive.

A beginning infiltrating carcinoma may also present difficulties of diagnosis; its site, however, is usually in the anterior part of the larynx, and the disturbance of the motility of the cord is out of all proportion to the apparent size of the lesion, due to deeply penetrating carcinomatous strands. In cancer of this type and in this stage of development, as in gumma, the vocal cords are free from ulceration. A beginning tuberculosis of the larynx of the granulating type may strongly resemble a papilloma; the latter, however, is diffuse, and is spread over nearly all the visible mucosa, while in tuberculosis the small miliary nodules at the base of the excrescences, as well as in the surrounding tissue, are rarely absent.

After ulceration in laryngeal phthisis has occurred, fewer difficulties of diagnosis will be encountered. The tertiary syphilitic ulcer results always from the breaking down of a gumma, has sharply defined, punched out edges, and its floor is covered with a characteristic *speckigen* membrane; the loss of substance is of the same extent, through all layers of the mucous membrane, hence the deep appearance of the ulcer. Redness and swelling of the surrounding mucosa are more intense than in gumma, while in tuberculosis the adjacent tissue may be quite pale and bloodless. Carcinomatous ulcers proceed definitely from one original point, and have irregular hard, infiltrated, everted edges. The mucous patches of secondary syphilis may resemble a superficial tuberculous ulceration. They are multiple, however, grayish white in color, and the accompanying "ham brown" erythema of the throat is distinctive. When mucous patches are present in the larynx, condylomata of the lips or of the pillars of the palate are rarely lacking. Fortunately in the great majority of cases the diagnosis of beginning tuberculosis of the larynx is easy. When, however, the lesion is of doubtful character, the signs in the lungs, the tubercle in the sputum, and finally the excision of a portion and its pathological examination will settle all dispute.

TREATMENT.

Preliminary to operation it is well to make a few local applications to the larynx of some bland, oily solution, in order to accustom the patient to endolaryngeal instrumentation, as well as to overcome any irritability of the throat, gagging or coughing, which is so often seen following the placing of the mirror against the soft palate. When extreme irritability is present I have the patient practise at home holding the extended tongue with the fingers of one hand, and the bowl of a spoon against the uvula,

palate, and posterior wall of the pharynx with the other. They then look into a mirror and repeat E or ah, practising deep inspirations.

For the operation, any electrode handle may be used, although the one of Sheeks, following the lines of construction of the usual endolaryngeal forceps, is more convenient, since the position of the hand behind, instead of on top of the handle, prevents any obscuring of the operative field as seen in the mirror. Two electrodes following the pharyngeal curve are necessary; they should be slightly flexible, in order that the different relative position of the larynx in different patients may be compensated. The tip of the electrodes should be generally oval in shape, drawn to a rounded point at the distal extremity, and fairly sharp. One tip should be transverse to the axis of the shaft, the other in the same plane. By varying the position of the handle, it is possible with these two tips to make a puncture in any desired position in the laryngeal mucosa. The direct method of operation with direct inspection of the operative field may be employed, using for this purpose a long Kirstein spatula, or a short bronchoscopic tube of any pattern, through which a straight electrode may be introduced. The slight advantage gained, however, by direct inspection of the field to be operated in, is more than compensated for by the pain, discomfort, and exhaustion of the patient caused by the hyperextension of the head necessary to the procedure, and so I have remained by the old indirect method, using an ordinary laryngeal mirror and reflected light.

Cocainization should be thorough; twenty per cent. is the best and safest solution, requiring much fewer applications, and if after three or four administrations, anesthesia is not produced, I at once proceed to a forty per cent. solution. Nothing is so harmful to these patients as the repeated application of a weak cocaine solution, to their delicate, easily injured, laryngeal mucous membranes, which is always accompanied by coughing, expectoration, gagging, and frequently vomiting, and is followed by severe pain and other symptoms of reaction.

The point of application of the electrode must be carefully chosen, and should not be exactly at the line of demarcation of diseased and healthy tissue, but far enough away from the latter, in the tuberculous mass, so that the heat necrosis will just about reach the normal, laryngeal mucous membrane. The instrument is introduced cold, applied upon the selected site, and enough current is turned on to produce a fairly bright cherry red, and pressure is applied until the tip of the electrode has sunk into the tissues, to a depth corresponding to the vertical extent of the lesion. The application is continued until the whitened cauterized area has reached the apparently normal tissues; the current is then turned off, and the instrument quickly withdrawn, care being taken to avoid the posterior pharyngeal wall, epiglottis, and base of tongue, burns in which localities causing more subsequent pain and discomfort than the operation itself.

Immediately after operation one sees a whitened area, in the centre of which, corresponding to the site of puncture, is a brown stain. This whiteness persists for several days and is naturally accompanied by a slight amount of inflammatory reac-

tion and pain. Healing takes place in one of two ways: either the entire cauterized area sloughs off in about a week, leaving a simple ulcer in the healthy tissue, which readily heals, or it remains *in situ* and becomes converted into a mass of dense connective tissue, which shrinks, and inside of two or three months the site of a previously flourishing tuberculoma is impossible to discover.

The submucous cauterization should not be applied in all cases of beginning tuberculosis. Superficial ulcers on the posterior wall, particularly those on the cords, do better on the old method of lactic acid applications, but when the ulcer is situated on the surface of a tumor or on an infiltrate or where there is a tumor or infiltration or granulation without ulceration, there is found its field of usefulness, and the results are eminently satisfactory. Often I have seen patients visibly dying, in an advanced stage of phthisis, in whom any operative treatment, except for experimental purposes was strongly contraindicated, entirely recover from their laryngeal trouble.

The advantages of submucous cauterization over the old method of removal of tuberculous infiltrations by curettage, are that it is easier to perform, requiring no more skill than that necessary in making any topical application to the larynx, and it is a much shorter operation, being completed in a short fraction of a minute. There is absolutely no bleeding, in itself dangerous, no aspiration of blood, no coughing or struggling, and no exhaustion, symptoms seen so frequently to attend the use of the double curette; consequently the post-operative disturbance is less. In the majority of cases the curettement of an infiltrate merely means the conversion of a sluggish granuloma into a more or less progressive tuberculous ulcer.

The only dangers are the infliction of burns on structures extrinsic to the larynx, mentioned above, acute edema and perichondritis. The former, however, may follow the topical application to the vocal cords of a bland oil. Perichondritis is a severe but exceedingly rare complication: it usually renders a speedy tracheotomy necessary, which, however, is not an absolutely unfavorable outcome, as the rest afforded thereby, not only to the larynx, but to the lungs, which can by means of the cannula expel their secretions with little or no effort and without soiling or infecting the operative wound in the laryngeal mucosa, exercises a favorable influence on the course of the disease both in the larynx and lungs.

Perichondritis or any severe inflammatory reaction of the larynx or epiglottis can be avoided by the observance of one or two cautions. The cautery should not be too hot; a white heat is dangerous. The puncture should not be too deep, nor should more than two separate punctures be made at one sitting. The immediate neighborhood of the cricoarytenoid joint should also be treated with great respect; penetration of the capsule of this joint is liable to be followed by a most intense inflammatory reaction with exfoliation of the arytenoid cartilage.

The operation is of questionable value, if not contraindicated, in the case of weak, nervous, irritable individuals in whom advanced pulmonary le-

sions are present; or when the patients are poorly nourished, suffering from digestive disturbance and lack of appetite. A mild intermittent fever is not a contraindication; in the presence, however, of a continuous or of a septic febrile movement the operation should not be performed.

Following the operation the patient should be put upon a fluid diet, preferably milk; if, however, milk is not well borne, albumin water, cold broths, and soups, without pepper or salt, may be substituted. Rest for the larynx is important, and if possible the patient should be made to communicate his wants entirely by writing. This is exceedingly irksome for some people, and if he or she insists upon self ventilation by means of speech, it is well to limit their conversational tone to a whisper, which causes much less strain upon the healing wound than audible articulation. On the first and second day, insufflations of morphine and an antiseptic powder of equal parts may be given, and by the third or fourth day the antiseptic powder alone is sufficient. In about a week, or when the slough has separated, instillations of menthol in oil in two or three per cent. solution should be made; this loosens and aids in expelling the secretions from the wounded surface and also has an analgesic effect upon the same. Small doses of creosote or guaiacol carbonate are also useful at this time. Tonics and the general treatment of tuberculosis must naturally not be neglected. In the event of great shrinkage of the tumor or infiltrate, but not its complete reduction, the operation may be repeated within two or three months. But such cases are rare and in the vast majority of patients, submucous cauterization of a tuberculous infiltration, tumor, or granulation in the manner above described, is followed by a speedy disappearance of the same and generally by a complete restoration of the normal functions of the larynx.

498 WEST 158TH STREET.

NORMAL HUMAN BLOOD SERUM IN THE TREATMENT OF HEMORRHAGIC DIS- EASES OF INFANTS AND CHILDREN.*

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In placing before you for consideration and discussion the subject of normal human blood serum in the treatment of hemorrhagic diseases of infants and children, I desire to deal with certain reasons for the use of this particular serum; then briefly review some of the hemorrhagic conditions with citation of very concise histories, and last to mention theories in explanation of the therapeutical action of this remedy.

It has long been known that the subcutaneous, intraperitoneal, or intravenous injections of milk, white of egg, raw beef serum, and several other sub-

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stances having a proteid molecule, into animals, will cause severe symptoms or death. If single injections of sufficient size are made, especially into the guineapigs, death is very sure to follow. If the dose is small, symptoms may or may not immediately, but will surely follow a second injection given some days later, and are then almost sure to cause the death of the animal. In the course of immunizing experiments, Richet, several years ago, learned that certain substances, upon reinjection, failed to raise the resistance of the animal, i. e., to immunize it, but rather made it more sensitive than normal, so that as a rule death was caused by second injections. He applied the term "anaphylaxis" to this condition of lessened resistance. Further research in this line of investigation developed the fact that foreign proteids are universally capable of producing the *anaphylactic* effect. The proteid molecule is the largest known, and when acted upon by acids, alkalies, ferments, bacteria, and other agents is split up into smaller molecules, of which glycocoll, alanin, aminovalerianic acid, leucin, aspartic acid, glutaminic acid, phenylalanin, tyrosin, tryptophan, prolin, oxyprolin, serin, lysin, arginin, histidin, and cystin are the chief. From this very long list of derivatives a variety of intoxications might be produced, depending upon the manner of cleavage, after being introduced into the system.

Certain proteids, introduced by mouth, will in some individuals cause hypersensitiveness, which may be followed by certain death subsequent to future injections of the same proteid. This is explained by the theory that there is some form of indigestion with the absorption of the whole proteid molecule which has sensitized the individual to that proteid.

The subcutaneous administration of blood serum of one species of animal into another species, by virtue of its metameric proteid content, is capable of sensitizing that species in a manner similar to the above mentioned foreign proteids. Rosenau and Anderson, in their exhaustive experiments, demonstrated that the serum of any species of animal, when injected into another species, would produce the condition of anaphylaxis. The symptoms presenting were great weakness, dyspnea, convulsions, and hemorrhages of the bowel.

Studies in anaphylaxis by many others have shown the following undesirable conditions: Lowering of the blood pressure, prolonged coagulation of the blood, destruction of complement, and leucopenia. The most exhaustive studies upon the effect of foreign serum injections have been made by von Pirquet and Schick, and the term serum sickness they have applied to the symptoms developing after the injection of the various antitoxic sera. We all are very familiar with the symptoms and perhaps feel more or less anxiety when we have occasion to use these sera.

Several years ago (1902), when experimenting with normal human serum injections I observed that in my patients never developed any of the symptoms which I had been accustomed to see follow the use of diphtheria antitoxine. This observation is now recorded by others, and the general principle has been established that the serum of a species does not produce anaphylaxis when injected into the same

species. I have found this true in the use of repeated injections of human serum over twelve months' time to the amount of nearly four litres.

Another observation of importance has been made in studying upon animals the after effects of anaphylaxis. The animals thus affected tend, upon recovery, to lose weight and suffer marked nutritional disturbances. With homologous serum this is not the case. I have repeatedly demonstrated to my own satisfaction the nutritive value of human serum in the case of premature infants. In several instances when these infants could take nourishment by mouth very little or not at all, and death seemed imminent through lack of alimentation, I have, through the subcutaneous injection of normal human serum, seen them gain in every respect and go on to a normal development.

Normal human blood serum as a therapeutic agent will probably always find its broadest field of application in the treatment of the hemorrhagic diseases of children and the newborn.

The infrequency of this disease and the rapidity with which it proves fatal, make it extremely desirable that we have a well known specific, easily obtainable, with which to combat it. The beginning of this condition is not always the same. The baby may be in every way apparently healthy, plump, rosy, and functioning normally. Without warning it may vomit a quantity of fresh blood, or pass bloody or tarry stools, and these may be the only manifestations of hemorrhage. The bleeding may be subcutaneous, of a petechial nature, or occur as hematomata. The umbilical stump, a divided prepuce, or the gums may be the site of hemorrhage. Fatal internal hemorrhages not infrequently occur without external manifestations, and may affect the brain or any of the thoracic or abdominal organs. These patients clinically may show icterus, or may simply grow pale, feeble, and die without adequate cause. The autopsy makes the diagnosis, and we find the hemorrhages usually within the serous cavities or beneath a serous membrane, such as the pulmonary pleura, in the pericardium, under the capsule of the liver, under the kidney capsule, or in the peritoneal cavity. Microscopical examination of the various organs at autopsy shows anemia and cloudy swelling of the epithelium of the parenchymatous organs. The epithelium of the gastrointestinal tract usually shows the most advanced changes of degeneration and desquamation. My theory as to the cause of these hemorrhages I shall give you after having recited a few histories giving the clinical picture of the disease and the effect of the human serum treatment.

The first case I shall relate has been reported elsewhere, but I ask your indulgence while I repeat it, as it illustrates unusually well an instance of internal hemorrhage without external manifestations:

CASE I. N. J. L., second child, negative family history; first child stillborn on account of difficult labor. Present labor lasted two and one half hours; breech presentation; no interference; no anesthesia; weight at birth five pounds twelve ounces. Child appeared normal, and cried lustily; no cyanosis. On the third day it was slightly jaundiced. At this time it was noted he had a peculiar cry, there were spasmodic muscular movements, and he stopped nursing. There was no vomiting; the stools became yellow and were normal. Physical examination showed a small child with skin wrinkled, cyanotic, and dusky. He was aroused with

difficulty, occasionally giving a loud, shrill cry when disturbed. The fontanelles were noticed to be tense and bulging. The pupils were slightly unequal, and the eyes were turned to one side at intervals. There was rigidity of the neck and extremities at intervals. There was twitching of the muscles of the face, arms, and legs. The knee jerks were exaggerated. He would not take the breast, but would occasionally swallow fluid administered with a dropper. There were no evidences of hemorrhages into the skin or elsewhere. Lumbar puncture showed increased pressure, and one half ounce of bright red fluid was withdrawn, which contained 5,100,000 red cells, 2,400 leucocytes, and ninety per cent. hemoglobin. The specimen appeared to be pure blood and would not coagulate. The bulging of the fontanelles disappeared at the time of the puncture, but returned fifteen minutes later. Sixty hours after the onset of the first symptoms treatment by normal human blood serum was begun. During this time the condition of the child became progressively worse, so that during the last twenty-four hours he could not be aroused at all, ceased to swallow, and the lack of nourishment and loss of fluid gave him the atrophic appearance of athrepsia. He was not weighed on account of his poor condition.

At this time thirty c. c. of serum was given subcutaneously; six hours later thirty c. c. more. After the second dose the child began to show improvement. He appeared brighter and was able to nurse, and the muscular twitching was less marked. Sixty c. c. more serum was given in this twenty-four hours, at the end of which time the twitching had ceased entirely and he was nursing regularly every two hours. At the end of the second twenty-four hours the fontanelles were still bulging and another lumbar puncture was done, drawing off one half ounce of blood tinged spinal fluid, showing that active hemorrhage had ceased. Serum administration was continued for five days, the amount being diminished each day. In seven days the baby received a total of 630 c. c. administered in twenty-three doses. Improvement was continuous. At the fourth week he had regained his original birth weight. At two months he weighed eight pounds eight ounces; at three months twelve pounds; at four months fifteen pounds. At four months he appeared to be a normal child, having no spasticity; he held his head up, was able to hold objects in his hands, smiled upon provocation, and did not show signs of mental insufficiency. To-day he is a normal baby, two years old.

CASE II. C. L., aged seven years; always healthy until December, 1911, when she had gastroenteritis which was accompanied by considerable jaundice. The icterus was rather persistent after the stomach trouble disappeared, but finally, after a few weeks, cleared up. Late in January, 1912, had a severe tonsillitis which produced considerable prostration and from which recovery was slow. As soon as advisable, to facilitate convalescence, she was sent to the country, where, within a few hours after arrival bleeding from the nose began. Tight packing of the nares failed to control the bleeding, though this was repeated several times, both posteriorly and anteriorly. The child grew very anemic from the loss of blood, was very restless, and showed some temperature reaction. After some hours subcutaneous hemorrhages began and affected extensively the trunk and extremities.

On the day following the appearance of the hemorrhages thirty-seven c. c. normal human blood serum was administered, on the following day forty-three c. c. and about thirty c. c. on each of the succeeding five days. Within a few hours after the administration of the first dose of serum the hemorrhages ceased and did not return. The serum administration was continued regardless of this both to prevent subsequent bleeding and to stimulate recovery from the blood already lost. Convalescence was very rapid and complete. The child is to-day healthy, well nourished, and in every way apparently normal.

CASE III. Baby L., in the twentieth hour after birth, passed a large bloody stool which was followed several times during the day by other profuse blood bowel movements. The hemorrhages were so extensive as to occasion great alarm on the part of the attending obstetrician. I was asked to administer normal human blood serum more for the sake of having exhausted every known means of life saving rather than for any belief the attendant had in its efficacy to control hemorrhage. The child was extremely anemic and too weak to nurse.

Human serum injections were begun four hours after the first hemorrhage appeared, and a total of 101 c. c. were administered during the succeeding twenty-four hours, at the end of which time the hemorrhage was controlled. The serum injections were continued through the succeeding three days, at the end of which time a total of 226 c. c. had been administered. At the end of the first twenty-four hours after the beginning of the hemorrhage in this case the child's strength was so reduced that it was unable to nurse. Under the influence of the serum administration strength rapidly returned, and on the fourth day the child was put to the breast and was able to nurse normally. This child is to-day a normal healthy baby.

I will not tire you by reciting further histories. These three cases illustrate my successful experience with thirty-five patients who have been saved by this method. I wish to take occasion here to emphasize the importance of very prompt action in the case of any hemorrhage in the newborn and in those instances where there is an unaccountable rather sudden pallor accompanied by undue weakness. I was called to see baby K. at noon. The evening before he had passed a small drop of blood with the urine and had grown very weak and pale during the fifteen hours immediately following. When I arrived the child was reported dead. Autopsy showed a large hemorrhage into the right adrenal body, which had ruptured and the peritoneal cavity was full of blood. There was no free blood in the bladder, but a few submucous hemorrhages were found. The blood in the adrenal and in the peritoneal cavity showed extensive clotting.

Dr. W. M. Bradshaw asked me to see a newborn baby which had not appeared as strong as should be two or three days after birth, though a robust child when delivered. This child exhibited an increasing pallor, very prominent abdomen, and a few hours previous to death faint hemorrhagic spots appeared beneath the skin of the trunk. When I arrived the child was dead. Autopsy revealed the peritoneal cavity full of blood in which were a few clots. The hemorrhage came from multiple points in the general peritoneal surface and not from a rupture of a viscus. Cases such as these I believe are hopeless from the beginning; as in the first instance irreparable damage had been done by early rupture of the adrenal body and in the second the fatal hemorrhage was too rapid to permit therapeutical action.

The underlying condition in these bleeding cases, I believe, has to do with the endothelium lining the bloodvessels, and I think a disturbance in the balance of the ferments of these cells is the immediate cause of the hemorrhages. This disturbance I believe to be due to malnutrition. The malnutrition may be caused in different ways, but in the end has the same result. In the bleeding babies we find marked putrefaction, hypersecretion of mucus, and bad odors indicative of marked decomposition in the colon. This decomposition is accompanied by the production of toxines, which are absorbed and interfere with the nutrition of the endothelium, possibly by producing a cloudy swelling, and thereby upset the balance normally maintained between the ferments and anti-ferments of these cells. In a very recent case of hemorrhage in the newborn a foul odor, identical with that of the stool, was exhaled from the general skin surface. Hemorrhages so commonly reported in specific babies can be ac-

counted for in this way, and also those occurring in individuals having a bacteriemia. The toxins of these various conditions are equally capable of destroying the normal equilibrium of the endothelium.

A long list of observations have descended to us from the literature, which seem to have well established that these hemorrhages are due to some abnormal condition of the blood itself, that it is a blood disease. The main facts in support of this conclusion are the delayed coagulation time of the blood and what appears to be an hereditary tendency. In an article entitled *The Relation of the Blood Platelets to Hemorrhagic Disease*, Dr. W. W. Duke has pointed out that there is a marked diminution of the blood plates in these hemorrhagic conditions and that when these are supplied by transfusion of blood the bleeding stops for a time, but with the reduction of these elements the hemorrhages will recur. The blood plates have been demonstrated to be the nuclei about which thrombi form, as they produce a ferment substance which is concerned in the formation of fibrin. Such thrombi we find naturally as hemostatic agents, instrumental in stopping hemorrhage due to bloodvessel injury.

The blood in some of the bleeding cases has a normal coagulation time, but in the greater number the coagulation time is prolonged, and in some instances decomposition takes place without clotting having occurred.

When normal serum, from whatever source, is added to the blood in any of these cases which have a much prolonged coagulation time, it will cause a prompt clotting. From this fact it has been reasoned that there is lacking in the blood of these individuals a kinase, or activating substance, which would normally cause coagulation. If this were true we should expect to find a coagulation of the blood in the hemorrhagic areas in those cases in which the hemorrhages have been controlled by the use of serum, but this is not the case. Clotting in the tissues does not occur after the use of normal human blood serum. The hemorrhage is stopped through some other process than that of coagulation, and the blood of existing hemorrhages is absorbed without having formed clots. The effect of the normal human blood serum in controlling these hemorrhages seems to be through its nutritional effect, especially upon the endothelium lining the bloodvessels.

These hemorrhages usually occur after some special disturbance of nutrition. This disturbance may be more or less chronic, with considerable wasting away of the general tissues before the hemorrhage begins. In other cases it seems to be more acute and a condition of toxemia or septicemia. In the first instance it appears to be a species of auto-intoxication, originating in the excessive growth of pathogenic bacteria in the intestinal tract with the absorption of large quantities of toxins; in the second instance a septicemia, with the growth of bacteria in the blood stream which produces a profound systemic poisoning. All of these conditions have the same general effect upon the nutrition of the endothelial lining of the bloodvessels. This disturbance operates to upset the balance normally maintained between the ferments and antiferments native in the cells, thereby producing conditions leading to

hemorrhage. The normal human serum is a prepared food having molecules with receptors which fit the receptors of the cells of the endothelium, according to the side chain theory of Ehrlich, which in that way is capable of being incorporated into the cell body as nourishment without any energy being expended in the process of digestion. The nutrition being thus easily restored, the balance of ferments is reestablished and the hemorrhages are stopped.

In passing, just a word in regard to the injection of defibrinated blood which is advocated by some who have used it. Experiments made by Ehrlich have demonstrated that the red blood cells injected into the same species call forth a hemolytic body for their digestion and removal, which he calls isolysin. In the formation of the isolysins a certain amount of cellular energy is consumed which is just so much extra tax on the individual's capacity for general resistance. The serum is so easily obtained that I can see no reason for using whole blood, especially in babies, thereby possibly reducing the strength of the child already at its lowest ebb.

Transfusion which has been so much employed, is of value, but it is accompanied by certain dangers. Hemolysis, thrombosis, and embolism, all or any of which may lead to the death of the patient, are to be feared. It is true that these are not very frequent occurrences, but still they are common enough to make one hesitate before using transfusion if some other efficacious remedy can be employed. The disadvantages of transfusion are, first, the difficulty of the operation, which is not so simple as many suppose; second, it is frequently necessary to use the method several times on the same subject, and in this it has certainly a great disadvantage, while on the other hand normal human blood serum can be repeated frequently and used indefinitely. I do not wish to disparage too much the use of transfusion, for I believe it has a field which no other agent or measure can replace. In cases of very marked depletion from prolonged hemorrhage, in which the cellular elements of the blood are greatly diminished, I believe the only measure to use is transfusion, for in this operation we supply the cells necessary to the blood which are entirely lacking in any serum we may administer.

138 WEST SEVENTIETH STREET.

EYE STRAIN IN CHILDREN.*

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A time worn saying, "Just as the twig is bent, the tree's inclined," is most applicable to the subject in hand. And such a bend, however slight it may be at the start, becomes more pronounced and far reaching in its results as the tissues grow and develop. It devolves upon us, therefore, as medical men by our advice and good counsel to remedy that bend early, to prop up the weak places so that the tree when full grown may be strong and sturdy in all of its component parts that it may withstand the blast in the battle of life.

Of all the five senses, that of sight is the most

*Read at a meeting of the Medical Association of the Greater City of New York, held at Jamaica, Borough of Queens, April 1, 1912.

highly developed and differentiated, and when the eyes, through a defective refraction or imperfect adjustment, fail to work in harmony, there is brought about a condition which is an important and too commonly neglected factor in the cause and perpetuation of disease. The purpose of the eye is to receive rays of light which are focused upon the retina, where they are changed into nerve fibre stimuli, and these stimuli are conducted to the brain by way of the optic tract.

In a recent issue of one of the daily papers there was an editorial article, written probably by a layman, entitled *A Child is Educated through Its Eyes*. There is absolutely no question of the fact that in the first few years of existence by far the greater part of the child's knowledge is taken in through its eyes, which have been aptly termed the "main thoroughfares to the brain." Is it not reasonable to assume that if these eyes are distorted in their efforts to perform their function, a malformed image is carried to the brain and a distorted impression is the result?

It is a well known fact, and it occurs all too frequently, that a child goes on for years ignorant of the circumstance that it does not receive ocular pictures of things as they actually exist in life; and the discovery of this error is brought about only by the manifestation of some distressing symptom remote from the eye itself. In the progress and advancement of educational facilities there has come about a system of medical inspection of the schools which, so far as it goes, is excellent. The recent scar of a vaccination is most diligently sought for, and if not found the child is ordered to procure one. The mouth breather is sent home, with a card stating that his or her adenoids must be removed. *Does an error of refraction of a low degree receive attention?* No. As a rule it is only the pupil who cannot see distinctly the objects on the blackboard in consequence of a high degree of error, who is sent to the ophthalmologist. Now, it is not expected that the medical inspector of a school will make use of the ophthalmoscope, the keratometer, the Maddox prisms, and their kind. But I urge most forcibly a system whereby the eyes of children should be examined when attendance at school is first begun and the result of such examination, and that, as far as possible, it has been corrected should be shown by the certificate of one who has made a study of ophthalmology. To enter the army or the navy, one of the requirements is that the visual acuity be normal.

To be enrolled in a public school it should be a requirement that the vision of the scholar is normal, or, if in error, should have been corrected prior to the child beginning its studies.

The writer has been for some years an advocate of the systematic examination of the eyes of school children by a corps of ophthalmologists; such examinations can be properly made only by those who have made a special study of the subject and given much time to it. It cannot be done by the general practitioner. Would the opinion of the eye man carry any weight regarding a serious abdominal derangement? You say emphatically, No! And yet the school medical inspector is expected to differentiate between follicular conjunctivitis and mild

trachoma, to say whether a child has or has not normal vision by reviewing the children as on parade. A few of the anomalies which cause eye-strain are hypermetropia, myopia, astigmatism, and asthenopia or lack of muscular balance; and any one of these four conditions may and does cause a multitude of systemic disturbances, in addition to imposing a handicap upon the child who is endeavoring to take into its brain the knowledge for which our schools have been built up.

An eye that does not see correctly is deformed. A parent will not object to attention to the child who is afflicted with spinal curvature, hip joint disease, or club foot, but in nine cases out of ten, tell that parent that the child needs glasses to correct a deformity of the eye, and he rebels. The ophthalmologist is obliged to labor against this prejudice, regarding the placing of correcting glasses on young children.

Hypermetropia, in which the eye is shallow, and the rays of light come to a focal point behind the eye instead of coming together upon the retina as they do in the emmetropic or normal eye, is a very common defect, and this condition of farsightedness is most frequently seen in children of tuberculous parentage (due probably to the shallowness of the orbits).

Hypermetropia cannot be corrected too early in life. It is without doubt one of the most frequent causes of sick headache, which, it has been observed, is prevalent in some families. Hypermetropia is a congenital defect and is never outgrown. A child with hypermetropia suffers from early babyhood (in many instances unconscious of the fact) from a great variety of symptoms, caused by the strain to which it is subjected in the effort to see distinctly. It sometimes sees double, or a slight cast in the eye is developed. The effort of study and close application brings on an indescribable sense of discomfort and uneasiness; and play brings a sense of peculiar relief. As a rule these children excel in out of door sports, which require but slight efforts of accommodation of vision. They are apt to boast of their power of vision and they can frequently read all of the test types made for the distance of twenty feet, without error. The suggestion of fitting glasses to such children seems absurd to the parents so long as the child sees well without them.

Now let us for a moment analyze what is happening in the hypermetropic eye which is shorter in its anteroposterior diameter than the normal eye. With the eye at rest, the divergent or parallel rays come to a point *behind the retina*, and this hypermetropia must render his lens more convex, in order to bring them to a focal point on the retina; he sees, not with ease, but with an effort of accommodation; he is calling upon his reserve force (a surplus) and sooner or later this surplus is to a great extent exhausted. Nature begins to worry, like the man with a short bank reserve. Nature hoists signals of distress for this overtaxed organ; and she is not signalling for headache powders or calomel. She asks aid for the refractive error of this eye, so that it may see without constant effort. She calls loudly, not alone for the treatment of the symptom, but for the removal of the cause.

A very marked symptom which the hypermetrope exhibits is a sense of sleepiness when he reads, even for a short time. Just a word as to the statement which we often hear, viz., if you put glasses on this patient he will become dependent upon their use. Of course he does, and why? Those glasses give relief and correct an existing eyestrain, and *no time should be lost in affording this relief*. I think it is a conceded fact and one without prejudice, that the so called sick headaches (the symptoms of which are reflex in character) are in the vast majority of cases due to some ocular defect. The central nervous system regulates and controls the functions of the various organs; and it is not irrational to infer that that central nervous system, when upset, disturbs the servants under it, in order to advance the argument that those servants themselves are the important factors in the causation of the symptoms.

The myopic or elongated eye is less liable to cause physical disturbance than the hypermetropic. Distant objects are more or less indistinct to the myopic eye in proportion to the excessive length of the anteroposterior diameter. The parallel rays come to a point *in front of the retina* and no amount of muscular effort can overcome or improve the defect in vision, except through compressing the eyeball slightly by squinting the lids. As a consequence, myopes are not subjected to the same muscular strain which the farsighted patient constantly and unconsciously exerts in order to see at a distance. Again, the nearsighted eye can read or perform most of the functions required of it, when the object is brought sufficiently close without any material muscular effort. Nearsighted children are liable to be considered precocious beyond their years, for the reason that they prefer to read rather than to play out of doors. The nearsighted eye is less liable to cause distressing disturbances of the nervous system than the farsighted one, provided that it is not accompanied by astigmatism or muscular insufficiency; and yet it should be remembered that the myopic subjects are more frequently sent to the ophthalmologist than are the hypermetropic, for the reason that in the former the defect is more apparent and is more often recognized than in the latter.

The condition of astigmatism which causes numerous reflex disturbances, is due to a state in which either the cornea or the lens has a greater curvature in one meridian than in another. In hypermetropia and myopia the eye has been considered as a sphere; but in astigmatism the rays of light entering the eye are bent more in one meridian than in the other, according to the curvature of each meridian. Now, this condition is present in practically all eyes, but when it exists in but slight degree, viz., less than one fortieth, it does not materially disturb vision nor produce reflex symptoms. The word, astigmatism, as applied to refraction signifies that the rays of light coming from a point are not reunited at a point, or that rays in the different meridians will focus at different points on the visual axis as a line. This condition when it exists to a degree greater than above mentioned is very annoying to the individual, as he will see

all objects in a blurred state, distorted, and irregular in all their parts.

To astigmatism is due the fact that the stars and other lights at night have their rays, which would disappear if the curvature of the cornea and the lens was perfect. It will be frequently noticed that the astigmatic subject, whose error has not been corrected by proper glasses, will, in looking at an object, tilt his head to one angle or another in order to see more distinctly. To correct astigmatism a cylindrical glass is used, in other words a glass which has correcting power in one meridian and is neutral in the other. It is often extremely difficult properly to correct astigmatism; it requires experience and a thorough knowledge of optics, as well as a familiarity with the use of the ophthalmoscope.

Let us consider another fruitful source of trouble, heterophoria, or lack of muscular balance. Given an absolutely normal pair of eyes as to refractive power, the muscles which move those eyes in various directions, must do perfect team work. The associated power of the ocular muscles must be perfectly balanced. Each muscle has its opponent, and the opponent must be neither too strong nor too weak for its fellow. If one muscle insists upon pulling harder than its opponent, there is trouble in the central office, the brain; and Nature calls a strike in one or more of the functions of the system. Now, most of the members of the human mechanism are given a counterpart; the two may be called upon to work at the same time, but in the interval there is rest for the one or the other. Not so with the eyes; during the waking hours both are in action at the same time; and they work longer and harder than any of the other members. The muscles of the eyes are its reins, the brain is the driver. At the command of the brain the eye revolves, or remains stationary at the desired point. The tension of the muscles opposed to any movement of the eye is so modified by the brain as to insure the requisite support of the eyeball and to steady it as it moves. An eye with inadequate muscular balance is like a horse with an incompetent driver. The proper tension upon the reins is not at all times maintained as it should be, a perfect equipoise is not established between opposing forces, fixed attitudes are maintained with difficulty for any length of time, and then comes a period where the brain is tired and exhausted from its unsuccessful efforts to keep the team of fractious eyes in the roadway of duty.

Insufficiency of ocular muscles is in the majority of cases, if not in all cases, a congenital defect. It is by the use of prisms and by partial tenotomies of the overstrung muscle that this trouble is corrected. In the opinion of many ophthalmologists the wearing of prisms in these cases is beneficial if not curative, provided the error is not of high degree. This method of applying prisms appeals to the parents much more than muscle cutting.

It is not the purpose of this paper to take up the more glaring and apparent eye defects which manifest themselves at once to the casual observer, but to urge that search be made for any defect in the ocular mechanism of children, however minor it may be, for such defects, when discovered and corrected

early, may mould the career of life for that small individual; and when it is considered in this light such a search is of the utmost importance.

The innervation of the ocular muscles is accomplished by three nerves. The oculomotor nerve supplies the internal, superior and inferior recti, also the inferior oblique, the sphincter of the pupil, and the ciliary muscle. The abducens supplies the external recti; and the trochlear nerve the superior oblique. The muscles of these three nerves lie upon the floor of the fourth ventricle.

Muscular disorders consist of spasms and paralyses. In general, spasms play but a subordinate part. But both spasms and paralyses point to the same local diagnostic area, and in some cases a spasm of an ocular muscle is merely the forerunner of a paralysis of that muscle. That absolute emmetropia is the exception and not the rule is shown by many investigators. Cohen, for example, found in 299 eyes under atropine not one case of emmetropia. Hansen found twenty-six emmetropic eyes in 1,610 cases; Duerr thirty in 414; and Randal states that in an examination of 1,834 eyes of school children only 7.36 per cent. were found to be emmetropic.

Given the problem that but a small percentage of children's eyes perform their functions without effort, what can be done to prop up and strengthen the weak members and to keep the normal members from becoming weak? First, it becomes our duty to look for trouble, even if it be not boldly apparent. When found, it cannot be corrected too early. There is one condition, frequently met with in young children of the poorer classes, which causes probably more refractive errors and subsequent eyestrain than all of the others mentioned, viz., phlyctenular keratitis.

We find that well nourished children who have an abundance of sunlight are not prone to this trouble. About ten years ago, when the tenement house commission was formed, it was found that there were 361,000 dark rooms in the tenements of New York; this number has been reduced to about 200,000, still an appalling number. Let us bend our efforts to bring that down to smaller figures. When the physician finds the corneal ulcer, he should not waste time with mild measures, such as boric acid solutions, but resort to more radical procedures, for the longer that ulcer remains, the more it will change the refractive power of the cornea upon which it has formed.

Up to twelve years of age, only short, daily periods of study should be encouraged. We should also endeavor to bring about a condition in the school rooms, whereby light will enter the room from at least two sides. Within the last two months, the writer visited twenty-two public schools of the primary grade, and in but three of these did he find what could be considered the adequate amount and the proper direction of light.

If a portion of the money which is now spent by the city upon children's courts could be used in the proper attention to their eyes, the moral standard might be still more improved, for the child who sees things right, might do things right.

I would discourage the attendance by young children upon moving picture exhibitions. It is con-

ceded that these pictures have a tendency to bring out latent ocular defects and increase the weakness of the already weakened member.

Last, it may be urged that the attending family physician and the ophthalmologist work together hand in hand, and not at cross purposes, for the well being of the child.

416 CHURCH STREET.

THE ORIGIN OF MEDICAL JOURNALISM.

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The origin of medical journalism is about the same as that of scientific, literary, historical, philosophical, and religious journalism. The reason is very simple; medicine, philosophy, and letters, often appealed to the same studious men, and the few periodicals that were first issued were used for universal human enlightenment, because very little was published and the number of those journals was very small.

To the Frenchman, Dionysius Sallus, counsellor in the Parliament, nearly all historians and literary men give the credit of having originated the first scientific literary journal, which was issued in Paris, in 1665, with the title: *Journal des Sçavants*.

Costantinus Wolphius (*De Photio Ephemeridum Inventore*, Wittemberg, 1689), de la Bizardiére, and Mr. Junker recognize the origin of journalism in a work of Photius, patriarch of Constantinople, who, in the ninth century, wrote a book called *Bibliotheca*, in which he gave a sketch of some books read by him during his ambassadorship in Assyria. But critical men deny to this book the importance of a periodical, because it had not what was peculiar to the French journal, namely, the periodicity of publication and the résumés of the new books which were published. We must remember also that in the year 1554, in Frankfurt, some catalogues began to be printed, in which new books were announced and some news was given. But these catalogues, interesting perhaps to the business men, had no importance for the historians. We cannot give importance, for the history of scientific journalism, to the papers known under the names of *Avvisi*, *Spacci*, or *Gazette* (so called from the Venetian *gazetta*, which was a piece of money, valued at two cents). They were read in manuscript during the sixteenth century and were used just to give a knowledge of the most important civil, military, and religious news. The *Journal des Sçavants*, published, as we saw, by Dionysius Sallus, under the pseudonym of Hedouville, produced great enthusiasm and had a long and glorious life, because it responded to a need which was felt strongly at that time.

With the improvement in the art of printing, and also in all studies in the sixteenth and seventeenth centuries, with the diffusion and development of the academies, literary productions began to be numerous, so much so that it was difficult to read all the books which were published, and the need was felt of having some résumés. Not only was it desired to

know what was being published, but also what was issued during the previous years in which the great knowledge gathered was little known and diffused, because the copies kept in the libraries, or by a few fortunate men, were very few. We must add also that, owing to the imperfect means of communication, it became more difficult to obtain all the books, which were being printed in great number. Human knowledge increased very much. Not all the academies, which were more numerous about the end of the sixteenth century and the beginning of the seventeenth, represented mere clubs or places of amusement where, after dinner, were recited sonnets and madrigals, but already some important academies were started, directed toward the progress of the philosophical and scientific studies. Already on August 17, 1603, by Prince Frederic Cesi, who found valuable assistants in Frank Stelluti, in Anastasius de Feliis, in John Ekius, doctor of medicine, there was started in Rome the celebrated *Accademia dei Lincei*, for the discussion of physical sciences, natural history, and mathematics.

In the year 1652 was founded in Germany the celebrated *Academia Naturæ Curiosorum*, which was very useful, as we will see, to the progress of the medical studies, and in the year 1657 was founded in Florence the *Accademia del Cimento*, which investigated the nature of bodies. Also, in the year 1660, were appointed the first meetings of the *Royal Society*, and in Paris, many years ago, was constituted the famous *Cabinet*, which formed afterward, in 1666, the *Académie de France*. I mention only the academies, where were held discussions about the sciences, because there were many others of importance, exclusively literary or religious in character, as the *Accademia pontificia*, the *Accademia di S. Luca*, the *Crusca*, founded in the year 1582.

The *Journal des Sçavants*, therefore, welcomed with a great enthusiasm, was translated into different languages and was soon imitated. In the same year, in London, Henry Oldenburg, secretary of the Royal Society, began the publication of the *Philosophical Transactions*, written in the English language and translated afterward into Latin by Christopher Sandro, into Italian in the year 1729, and also into other languages. These two periodicals represented, for a long time, the best scientific and literary journals.

Italy, however, could not remain indifferent to the new kind of publications. This country, where the first *Gazzetta* was published (1531), followed the example of the other countries. In Rome, in the year 1668, Frank Nazaro, a native of Bergamo, printed in the Italian language the first literary journal, called *Giornale de letterati* (editor, Nicholas Angelo Tinalisi). A special edition was published also in Boulogne. This periodical was published monthly, in sixteen pages, until the year 1679. There were summarized the *Memoirs*, which were issued separately and were reviewed by the other periodicals, which, to tell the truth, in the first years, were only those mentioned.

It purposed, first, to give "*proporzionata corrispondenza, cioè a dire una relazione delle esperienze naturali e curiosità, che si andavano osservando in Italia e dei libri, che in essa si stampa-*

vano." It contained also an ecclesiastical, historical, natural science, and medical review; among the various medical publications, which were illustrated, we are happy to mention some of Malpighi's writings. This journal was the first of a series of periodicals which, with the same title, were issued in Italy in the succeeding years. Thus, from 1686 to 1690, was published in Parma a *Giornale dei letterati*, by John Paul Giovanelli's *Nuova Stamperia alla insegna della Palma*. Among all these periodicals, the most important was the journal printed in Venice. It proposed to show, to Italians and foreigners, what was produced in Italy. Its preface was as follows: "We see also now that our literary novelties are known in the North, before they are known to ourselves, because we have not an erudite diary." The journal of Florence extended also to the foreign publications. The programme also contained other phrases, which we like to recall. "In the extract of any book"—it was written—"you can find our judgment without passion and expressed appropriately by a man of education, who does not love the slander, but the truth." This declaration was deemed necessary, because, for a long time, the criticism also in scientific journals, was very severe; we will see afterward that same declaration was made by some medical journals, not so very old, in order to avoid the continuous discussion which took place between the various authors, and between them and the editors.

After the first *Giornale dei letterati*, published in Italy, came the turn of Germany, Denmark, Holland, with journals of special and of general character. Among the special journals, we will speak afterward of the medical only, because they are interesting to us; among the general journals, we mention first all the series of publications, which were initiated in Leipzig in 1682, and called *Acta Eruditorum* (apud Grossium et Gledischium). They, with *Supplementa* (1692-1734) and *Nova Acta* (1735-1754) constitute a valuable collection, which continued for about a century. A special condensed edition of the two first series was made in Venice (1740-1746) with the title, *Opuscula omnia actis Eruditorum Lipsiensibus inserta* (Typis J. P. Pasquale). They contained extracts from the various journals and accounts of the communications read in the academies: among the medical essays there illustrated, we remember Glisson's, Hispon's, Borelli's, Heyde's, and Walther's writings.

After the establishment of the *Acta Lipsiensia*, also called the *Acta Eruditorum*, in the year 1686, was begun in Holland another series of journals, called *Bibliothèques*. This name was not new in the literary world, but very old, having been used for a long time, just to indicate the collection of the memoirs, books, and illustrated catalogues, which were published on any special subject. Thus the *Bibliothecæ* are numerous, which were issued and continued to be issued, in more recent times, in all branches of human knowledge. I remember, among them, the *Bibliotheca medica, sive Catalogus illorum qui ex professo autem medicam in hunc usque annum scriptis illustrarunt* (Basileæ, 1590), by Gallus; the *Bibliotheca realis medica omnium*

materiarum rerum et titulorum in ordine alphabetica, etc. (1669), by Lipenius; the *Bibliotheca librorum variorum physico-medica*, etc. (Helme-stadii, 1731-1752), by Boerner, and the two important series of medical *Bibliotheca*, which were celebrated: Manget's and Haller's. Among the Manget's *Bibliotheca* I mention: *Bibliotheca scriptorum medicorum veterum et recentiorum* (Genevæ, 1731 t. 4); *Bibliotheca chirurgica* (Genevæ, 1721); *Bibliotheca medico-pratica sive rerum medicarum thesaurus cumulatissimus*, etc. (Genevæ, 1695-97, t. 4); *Bibliotheca pharmaceutica-medica* (Genevæ, 1703). Among the Haller's, I note: *Bibliotheca anatomica* (1774-1777), *Bibliotheca medicinae practica* (1776-78).

The oldest periodical *Bibliothèque*, published in Holland, appeared, as we said before, in the year 1686, and continued until the year 1691. It had for title: *Bibliothèque universelle et hystorique* and was written in the French language. It contained, not only the summaries of the works which were being published, but also some old works, of Greek and Latin authors, of the Fathers of the church; it published also original articles and its subjects were physics, mathematics, medicine, humanity, etc. This journal was issued by Jean le Clerc until the year 1714, in small volumes, every six months; that year, the editor dying, it was suspended, but afterward the same book was revived, under the title of *Bibliothèque ancienne et moderne pour servir de suite aux bibliothèques universelle et choisie* (chez David Mortier).

In its second *Bibliothèque*, Jean le Clerc explained, in the clearest way, the plan he had adopted in writing his magazine. "I have no other purpose," he says, "than to speak about old and modern books, as they come to my hands, without observing any order, according to the time; but I make the extracts and I tell what I think."

Besides these *bibliothèques*, others were published periodically. Many of them do not interest us, because they do not contain medical matter. I remember among them, *Bibliothèque raisonnée* (from 1728), *Bibliotheca literaria*, of London (from 1722), *Biblioteca italica o Storia letteraria d'Italia* (from 1778), *Bibliothèque des sciences et des beaux arts* (Le Haye, chez Pierre Gosse junior—from 1754 to 1764). The number of journals, however, was growing and in the first half of the eighteenth century, they were so numerous, that we cannot mention all. We remember now the most important, in chronological order, the different *Mercuries* and, among them, *Mercur sçavan* or *Mercurius gallicus* (1684), *Nouvelles de la république des lettres* (initiated in 1684 by Bayle and continued in 1669 by Bernard), *Histoire des ouvrages des savans* (Holland, Henry Basnage, 1687-1709), *Nouveau journal des savans* (Rotterdam, 1694, and Berlin, 1696-1698), *Miscellanea italica erudita*, *Galleria di Minerva* (1696-1713), *Nova literaria Maris Baltici* (1698-1708), *Acta literaria Svecica*, *Nova literaria Germanica*; *Genio dei letterati*; *Histoire critique de la république des lettres* (1712-1718), *Europe sçavante*, *Nouvelle bibliothèque*, of The Hague, *Novelle della Repubblica delle lettere* of Verone, *Novelle letterarie pubblicate a Firenze* (1740-1774).

We must pay special attention, for the importance which it acquired and for the length of time it was published, to a periodical which appeared at Paris, in 1701; it was called: *Memoires pour l'histoire des sciences et des beaux arts*, printed in Trevoux, in the printing office of H. H. S. Mylord Prince Souvrain de Dombes.

It was published until the year 1775, and formed a series of about 400 small volumes (of twelve by eight centimetres). According to its index, it must have contained a review of letters, physics, medicine, and new machinery, and illustrated the publications made in France, Spain, Italy, Germany, the kingdoms of the north, Holland, England, so that everybody interested in any kind of sciences, could find what he needed.

Medical publications, however, were very few. We must mention a method which was introduced in this journal, in order to make the summaries, and which was used recently by Professor Riva, of Parma, in publishing an Italian magazine, called *Autoriassunti e Riviste*, viz., the method of the *autorésumés*.

"Nobody, generally speaking"—it is written in the introduction—"is able to make the extracts of a book better than he who wrote it, and an author might be afraid that another man could make him think and speak, as he intends. They, who desire to make, themselves, the extracts of their own works, must send them to the editors of the *Mémoires*." The editors of these *Mémoires* were more cunning than the good Professor Riva, because they gave notice that they compared such extracts with the originals, in order to see if they were faithful. "We think necessary this precaution," it is added, "because an author does not always develop in his work the idea which he has formed, and which he reveals in the introduction."

Beside the journals mentioned, a series of periodical publications merits particular consideration in the history of scientific journalism; this was a series due to the academies which were numerous at that time. Already one of the oldest, viz., the *Philosophical Transactions*, of London, was due to the *Royal Society*; to other periodicals the academicians could bring their valuable cooperation: but when I speak about academic publications, I mean particularly that category of publications, which were called *Acts*, *Memoirs*, etc. A sketch of these acts we can find in the *Appunti* or *Verbali* of the *Accademia dei Lincei*, which remained unedited and in the *Gesta Lynceorum*, published by Eckio (one of the founders of this academy) in Rome, in 1605.

In 1667, was published in Florence an account of the works, made by the *Accademia del Cimento*, under the title: *Saggi di naturali esperienze fatte all'Accademia del Cimento*, but this publication was not of a periodical character. In 1686, an academy, founded in Brescia, decided to publish its acts, for a period of a little more than a year; the matter was physics, medicine, and mathematics. But the most celebrated acts, for its antiquity and continuance and for the importance of the publications, is the *Acts* of the *Académie des Sciences* of Paris.

The first volume was issued in 1692 and is pre-

served in the National library of Paris; it was entitled: *Mémoires de mathématique de physique tirées des registres de l'Académie royale des Sciences*; in the year 1697 was issued by Duhamel, a volume which contained the dissertations and the observations of the first thirty years of its existence; in 1733 began the *Histoire et mémoires de l'Académie des sciences, son établissement en 1666, jusqu'à l'année 1790* (Paris, Gabriel Martin), which was published until 1797, forming a series of 114 volumes, in quarto, which contained numerous and important contributions on medicine. We do not mention later publications, because they belong to a more recent period, which we do not consider.

The academy founded in Berlin in the first years of the eighteenth century began to publish its acts; the Academy of Petersburg began also in 1726 its memoirs, called *Memoirs of the Imperial Academy of the Sciences of Petersburg*, whose tenth volume was published in 1750. They are very interesting for the physician, because they contain numerous medical papers.

In 1731 appeared the first volume of the *Boniensis Scientiarum et Artium Academiae Commentaria* of Boulogne; in 1732 was started in Florence, under the protection of Mr. Pazzi, another academy, which had, as emblem, a pigeon house and as motto: *Quanto veder si può* (as we can see). May 15, 1735, a memoir was read and it was established that the memoirs of every year must be published in the *Annali*, and in the same year, 1747, the twelfth volume was issued. In the same year, in order to give a trial of the more important communications read in the academy, there were begun the interesting *Memorie di varia erudizione della Societa' Colombaria di Firenze* (Nella stamperia all' insegna di Apollo). Many scientific academies, however, published their acts; among them we remember the academies of Upsala (1773), of Dijon (*New Memoirs*, 1783), etc.

Having examined the origin of scientific journalism, it is now interesting to examine how the medical was first started, and what medical periodicals were first published. Although Junker, in his work published in 1692, on the first thirty years of literary and scientific journalism and entitled, *Christiani Junkeri Dresdensis Schediasma Historicum de Ephemeridibus, sive Diarius Eruditorum in nobilioribus Europæ partibus hactenus publicatis*. Lipsiæ sumpt. John. Fred. Gleditsch, 1692, in octavo, places the *Philosophical Transactions*, of London, among *Ephemerides medicæ et physicæ*, nevertheless we cannot consider this periodical the first medical journal, because it treated of other matters, such as physics, mathematics, and philosophy.

The first medical journal which has a great importance in the history of medicine, because it contains about all the medical movement of twenty years, is that published by *Academici naturæ curiosi*. It began to be published in Leipzig and Breslau, in 1670, by Philip James Sachs, and its first volume had the following title, rather long: *Miscellanæ curiosa Medico-Physica Academia Naturæ Curiosorum, sive Ephemeridum Medico-Physicarum. Annus primus, continens celeberrimorum Medicorum in et*

extra Germaniam observationes Medicas et Physicas vel Anatomicas, vel Botanicas, vel Pathologicas, vel Chirurgicas, vel Therapeuticas, vel Chemicas, Præfixa Epistola invitatoria ad Celeberrimos Medicos Europæ. Lipsiæ et Uratislaviæ. Anno 1670.

This journal, published in octavo, with elegance and richness of illustration, contained observations worthy of being remembered, original, extracted from monographs or other periodicals. After Sachs, who died two years later, Henry Volgnadius and John Geniesius, of Breslau, and afterward Georges Volchainerus, of Nuremberg, were the editors. Together with the *Academia Naturæ Curiosorum*, it became famous, so that it was an honor being a member of that academy. Two *decuriæ* were published; the first from 1670 to 1679; the second from 1682 to 1691. During the years 1685-86, Valentini published extracts under the form of another periodical called: *Historia literaria Medica, sive recensio librorum, quia Membris Societatis Naturæ Curiosorum editi sunt*. Giessæ.

The example of Germany was at once followed by Denmark; a year after, namely in 1671, the great Thomas Bartholinus began *Acta medica Hafniensia*, wherein were collected numerous rare observations and some experiments, performed in Denmark. The journal, dedicated to the Trinity, was published in Copenhagen; from 1671 to 1679 only five volumes were issued.

Afterward it was the turn of France; in the same year, in which was published the last volume of the Danish Acts, a Frenchman, Nicholas de Blegny, surgeon in ordinary to the duke Aurelianus, and director of the society called *Academia Recens Exploratorum in Re Medica*, published the first French medical periodical, the name of which was: *Nouvelles découvertes sur toutes les parties de la médecine*, in duodicesimo. It was issued by the same author for three years (1679-1671), and was continued afterward by the Abbé de la Roque, who after some months changed the title of the journal to *Journaux de Médecine ou Observations des plus fameux Médecins Chirurgiens, et Anatomistes de l'Europe, tirés des journaux des pays étrangers et des mémoires particulières envoyés à Mr. l'Abbé la Roque à Paris* (1683), in duodicesimo. But it had a brief life, ending in the same year 1683; also, for a little time, it was published again in the year 1686 by Boelius.

The three volumes, however, of de Blegny's periodical were published again, translated into Latin, by the interpreter of Geneva, Theophilus Bonnet, who gave the periodical the following title: *Zodiacus Medicus Gallicus, sive Miscellaneorum Medico-Physicorum, titulo: recens in re Medica exploratorum, unoquoque mense Parisiis Latine produntum*. Annus primus, scilicet 1679; auctore Nic. de Blegny. Genève 1680. The second volume appeared in 1682; the third in 1683. In 1680, it was the turn of Holland, and Stephen Blancard, a celebrated doctor of Amsterdam, published in the Dutch language a periodical which was translated into German by Tobias Peucerus, with the following title: *Collectanea Medico-Physica oder Holländisches Jahr-Register, die Beobachtungen sowohl in der Arzney Kunst als in der Wissenschaft der Natur in*

ganz Europa vorstellen, angefangen mit dem Jahr 1680, in octavo.

These periodicals constituted the first medical journals (see Cornelius Beugheem, *Syllabus recens exploratorum in re medica physica et chimica*, etc., Amstelodami, apud Janssonium Valsbergium, 1694); but, as we saw, excepting the celebrated *Miscellanea*, they had a short life. We must come to the year 1717 in order to see a new medical periodical, which had great importance and a long life.

In the meantime several journals appeared, which lived for a short time but did not leave a great memory behind them. I give the name of some, which I take from the fourth edition of *Polyhistor*, of Morhofius (Danielis Georgii Morhofii, *Polyhistor Literarius philosophicus et practicus cui præfationem notitiamque diarorum litterariorum Europæ præmissit. Jo. Albert Fabricius*) published in 1747, where such a *notitia diarorum litterariorum* is continued, until this year, by Joachim Schwabius. They are: *Observationes Chymico-Physico-Medicæ curiosæ*, Halle, Sax., auctore Ern. Shalio, 1697; *Deliciae Medicæ*, in oct. 1704; *Natur und Medizin, Kunst und Literatur Geschichte*. Breslau, 1717-1729.

In the year 1719, however, appeared the celebrated periodical of Berlin, called *Acta medicorum Berolinensium incrementum artis et scientiarum collecta et digesta*, apud Godofredum Gedichum; Doct. John. Daniel Gohlius was the compiler. *Acta Berolinensia*, made in the style of the *Acta Eruditorum Lipsiensia*, were published for a long series of years, constituting the most important medical periodical of the first half part of the eighteenth century.

In 1731, however, appeared in Edinburgh, through that Society of Medicine, another good journal, written in the English language, with the title of *Essays and Observations of Medicine*, which was translated into French, into Italian, also, in the year 1751 (Venice, by Frank Storti). This journal, although it was edited by a society, had nevertheless a large programme, because, beside containing the letters of numerous correspondents in every part of the world, it contained also a review of the more important things published.

In the same year appeared in Nuremberg the *Commercium litterarium ad rei medicæ et scientiæ naturalis incrementa institutum*, which lasted three years; in 1736 we have the *Medicorum Silesiacorum Satira quæ varias observationes casus experimenta, tentamina ex omni medicinæ ambita petita exhibent*. Breslau. In 1737, began to be published in Frankfurt on the Oder, in four volumes, *Selecta medica Francofurtensia, anatomien, in primis praticam chirurgiam, materiam medicam, ipsamque universam medicinam tam clinicam quam forensensem variis casibus et observationibus illustrantia*.

The number of medical journals having greatly increased, we have no idea of following them all, because it would take too long; but we will consider only two very important French publications, edited by two medical societies, one of surgery and another of medicine. The *Académie Royale de Chirurgie*, founded in Paris, in 1731, by the activity of Maréchal and Peyronie, called before the

Royal Society and elevated afterward, in 1747, to the grade of academy, published from 1743, the first volume of the *Mémoires de la Société royale de chirurgie*, in octavo, with very fine pictures. It was divided in two parts, the first containing the history, the second the memoirs.

The first part contained short and isolated observations; titles, and sometimes extracts of the books published by the academicians; eulogies of some members of the society; instruments and machines, presented to the academy, worthy of note. The second part contained the interesting memoirs presented to the academy and selected by the chairman. The second volume of the memoirs was issued in 1769; the third in 1778.

Another academy was founded in Paris; it was an academy of medicine. Under the title of the *Société Royale de Médecine*, it was founded by the King, April 29, 1776, and in 1779 it began to publish, in large volumes, of the same type as its predecessors, the *Histoire de la Société royale de médecine*. The publications of this society, which in 1829 took the title of *Mémoires de l'Académie royale de Médecine*, continue until the present time, constituting a precious and very fine collection.

In the second half of the eighteenth century, numerous medical periodicals were published in the various towns of Europe; we will mention only some among the oldest. They are *Journal de médecine de Paris*, *Médecine illustrée des Sciences physiques*, *Bibliotheca physico-medica du nord*, the *Gazette de santé*, founded in 1773, which is continued until the present time, under the title of *Gazette médicale de Paris*, and the *Nouvelles instructives, bibliographiques, historiques et critiques de médecine et de chirurgie* (1785-1787), continued afterward (1789-1791), under the title of *Nouvelles ou Annales de l'art de guérir*.

Italy, however, which had a great part in the origin of scientific and literary journals, began late to publish medical periodicals. The first periodical publication, which we can consider as a true journal of medicine, was the *Giornale per servire alla storia ragionata della medicina di questo secolo*, published in Venice (by John Baptiste Pasquale) in 1783. Before this journal, here and there appeared a few medical publications, which were intended to be periodical, but they cannot be considered as journals, because they were published for about a year and did not contain any review of new books, and published also old writings; they are the *miscellanea*, *raccolte*, etc. We may cite, for instance, *La Raccolta di varii opuscoli e dissertazioni intorno alcune principali materie in medicina, anatomia, botanica e storia naturale*, edited in Naples, in 1759, by Valentino Azzolino. One volume only perhaps appeared of this *Raccolta*. It contained published and unpublished observations, some of which were written about thirty years before.

We remember also the *Raccolta di opuscoli medico-pratici*, v. i, with pictures, Florence, 1773, published by Targioni, who constituted a society of medicine and collected in a volume some important monographs.

We may consider the journal of Venice as a true journal, which was very complete and important, but it had not a long life, because it ceased to be issued after some interruption, in 1799, on account of the wars and the revolutions which afflicted Europe in that time. It appeared in monthly numbers, in octavo, of about forty pages; each number in the first volume was divided into the following chapters, which always came in the same order: Anatomy, theoretical medicine, practice of medicine, medical chemistry, surgery, miscellany; but this order, in the following years, was not followed.

The editors of the journal were anxious, in the first year, to show the importance of the union of theory with practice and, in order to do so, they purposed to consider all theoretical and practical arguments, discussed by the learned, by giving a brief résumé of the old knowledge, and by showing, at the same time, how much theory had influenced practice and vice versa.

This plan, followed in the first volume, was given up in the succeeding ones, in which the system of other journals was pursued, "to publish simple extracts of new books, or new observations made by the editors, or communicated by the correspondents." They did not forget to give, from time to time, reflections to convince the physicians that practice and theory must be united in order to make progress in medicine.

This periodical disappeared in the year 1799; in the first years of the nineteenth century we had no medical journal in Italy, and medical works, as in the preceding years, were published or abstracted in the literary and scientific journals.

In the year 1806, however, the *Giornale della Societa Medico-chirurgica di Parma* appeared; and in 1811, the *Giornale medico-chirurgico* was published in Rome, by Flaiani. In 1812 and 1814, in Padua and in Milan, were begun two journals, which were celebrated for many years, the *Giornale di medicina pratica* and the *Annali di medicina straniera*, which changed, after a few years, the title to *Annali universali di medicina e chirurgia*.

The journals which I have mentioned constituted the former scientific, literary, and medical journals; now medical journals, completely separated from the other forms of periodicals, are so numerous that we cannot know, must less mention them all. America, Germany, England, France, Italy, Russia, Spain, etc., publish, every year, innumerable and interesting medical magazines, which we can divide into special classes.

On the one hand we have the archives, which contain original works; on the other we have the *reviews* or *Zentralblätter* or *résumés* which reveal the scientific movement, and we have also the entirely practical journals, which are published, in order to satisfy doctors who have little time for reading, and want in a journal to find only what is necessary to know for the practice of medicine. Medical journalism now is so interesting that we can say it is the mirror of the medical sciences, making known, in a short time, in every part of the world, what is observed by studious men of different nations.

316 EAST 116TH STREET.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXIX.—How do you manage chronic ulcers of the leg? (Closed December 16th.)

CXXX.—How do you treat subacute and chronic laryngitis? (Closed January 15, 1913.)

CXXXI.—How do you treat psoriasis, and with what success? (Answers due not later than February 15, 1913.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXVIII has been awarded to Dr. Maurice Schneek, of New York, whose article appeared on page 29

PRIZE QUESTION CXXVIII.

THE TREATMENT OF INFANTILE CONVULSIONS.

(Concluded from page 85.)

Dr. Louis Weiss, of East Pittsburgh, writes:

Before beginning the treatment, it is customary to take into consideration the etiology as briefly as possible. The predisposing causes are included under four headings as follows: 1. Hereditary and family tendencies to convulsions in individuals presenting an unbalanced nervous system. 2. Auto-intoxication hypothesis. 3. Circulatory derangement, such as unequal distribution of the blood, with a superabundance to the brain. 4. A special form of epilepsy that is amenable to treatment, especially in early childhood.

The exciting causes are all forms of reflex excitation of this unstable nervous system, and comprise the following: 1. Gastrointestinal, as teething, sudden overloading of the stomach, one of the most frequent causes, constipation, parasites, etc.; 2, genitourinary, as highly acid urine with formation of gravel; 3, respiratory, including anything that interferes with proper oxygenation of the blood, as croup, either membranous or diphtheritic, edema of glottis, compression of trachea, etc.; 4. nervous system, as tumors, blood clots, depressed fractures, abscess, etc., of brain or cord; 5, thermal conditions, as seen in all fevers, as scarlet fever, measles, meningitis, etc.

The treatment of this condition should be subdivided into that during the attack and in the interval. During the attack the room should be perfectly quiet, the physician should make a careful examination of the patient and subsequently proceed with the medication as required; a tepid bath with cold effusions to the head is very beneficial, es-

pecially if there is any fever; if there is no fever a hot mustard bath should be given in its place; followed by an immediate injection per rectum of chloral hydrate, alone, or in combination with the bromides; occasionally small doses of alcohol are beneficial in such cases as teething, as is asafoetida by rectal injection; chloroform inhalations have also been recommended, as well as amyl nitrite; in cases of respiratory failure artificial respiration should be immediately instituted; stimulants are given as required and include brandy, strychnine, atropine, and digitalis.

Immediately following an attack we must look to a thorough cleaning out of the gastrointestinal tract, and this is accomplished by the internal administration of calomel in fractional doses, for example one sixteenth grain every fifteen minutes until ten are taken, followed by castor oil about eight hours afterward, in doses of two teaspoonfuls to a tablespoonful. Some, however, give castor oil alone.

During the interval the treatment comprises the following: Dietetics is the most important consideration and involves a careful study of the infant's constitution; a good plan is to put the patient on oatmeal gruel for about two or three days with a gradual return to breast feeding, especially in very young infants, with proper amounts and at regular intervals; barley water may also be given in place of the gruel; if this is not feasible it has been recommended to give a farinaceous diet for at least a week with return to milk diet thereafter. In older children we may give milk, soups, and finely divided vegetables.

Hygienic treatment comprises plenty of fresh air and sunshine, especially near the seashore or forests, well ventilated sleeping rooms; likewise bathing is highly beneficial, together with plenty of water internally.

Medicinal care comprises the internal administration of phosphates or codliver oil, or a combination of both; milk and codliver oil are highly recommended; in fevers give diuretics and diaphoretics, tonics, as iron and arsenic, may be required. The bowels should be properly attended to and constipation overcome by cascara, castor oil, calomel, etc. Intestinal antiseptics are needed in cases of auto-intoxication, salol or bismuth salicylate; if due to pressure on the brain, operative procedures should be instituted, except in cases of syphilitics, when antisiphilitic remedies should be given, while all exciting causes should be treated as they arise.

Dr. Ralph Boice, of Sistersville, W. Va., remarks:

The treatment of infants presenting convulsions as a symptom should begin with the suppression of the convulsions themselves, and end only with the removal of the cause, so as to effect a radical cure.

On being called to a case of convulsions, I go at once and stay until the little patient is quiet. Chloroform by inhalation is the first thought. I do not push it to the extent of complete anesthesia because the spasm is usually quieted before that stage is reached. Then, as the majority of cases of infantile convulsions are due to some irritation of the gastrointestinal tract, I evacuate the bowels by a high colon injection, using a large catheter on the end of the syringe. To prevent a recurrence of the

spasm I then throw into the colon a solution of chloral hydrate and sodium bromide in an ounce of warm milk or starch water. Under six months I use one to two grains of chloral and four grains of sodium bromide; at six months, four grains of chloral and eight grains of the bromide; at one year, eight grains of chloral and from ten to fifteen grains of sodium bromide. The dose can be repeated in an hour if necessary.

It has been my practice in the past to place the child in a hot bath of mustard water, rubbing the trunk and extremities briskly during the immersion. Now, I use the mustard pack as suggested by Holt. This is prepared as follows: Mix one tablespoonful of mustard in a quart of tepid water. Saturate a towel in this and wrap around the baby's body, then envelop the little one in a blanket. Keep in pack until the body is a well defined red, which will take from ten to fifteen minutes. An icecap is kept to the head during this procedure. I like this pack much better than the bath, as the latter tends to weaken the infant.

After all these measures have been tried and the convulsions still continue, I use morphine sulphate hypodermically. This drug can do little, if any damage in convulsions, but on the contrary, is well indicated if the heart is weak. Under one year I use one forty-eighth grain; at one year, one twenty-fourth grain; at two years, one sixteenth grain.

Lumbar puncture, and the withdrawal of twenty to thirty c. c. of cerebrospinal fluid is advocated as a means to suppress the convulsions, but I have never had occasion to try it.

After the convulsions have ceased I administer a dose of castor oil and put the baby to bed. A liquid diet is prescribed for twenty-four to forty-eight hours.

If there is not a history of an overloaded stomach to account for the convulsions, I now seek to discover and remove the cause. Intestinal parasites are responsible for many cases. I always examine the urine, as the possibility of nephritis must not be overlooked. Rickets is the predisposing cause of a large number of cases and should be thought of at once. In four cases I found the convulsions to be due to an adherent prepuce, with a large accumulation of smegma. Circumcision gave prompt relief. A hooded clitoris may act in a similar manner. Brain lesions should also be considered.

*Dr. George B. Lake, First Lieutenant Medical Corps, U. S. Army, of Fort Sheridan, Ill., observes.**

The treatment of infantile convulsions may be considered in three parts: 1. Prophylaxis; 2, treatment of the acute attack; and, 3, treatment between the attacks.

Prophylaxis.—The most important consideration in preventing these appalling seizures (i. e., providing the child with normal and sturdy progenitors) lies outside the powers and functions of the physician as regards the particular case in hand, but it is, distinctly, a part of his work to see that those with whom he comes in contact are so instructed in matters of heredity that the breeding of those nervous-

*By permission of the Surgeon General, United States Army.

ly unstable individuals, in whom convulsions so frequently appear on slight provocation, may be minimized, if not obviated; for it is well recognized that the children of epileptics, hysterics, neurasthenics, or those weakened by disease or excesses are far more liable to be attacked in this manner than are the progeny of sound parents.

When, however, children are born to parents who are below par physically, the physician should realize the danger of convulsive attacks and should guard the child, so far as may be, from probably exciting causes, while strengthening and fortifying him against the time when such causes will be no longer avoidable. His life should be as regular as the clock in all matters, every form of irregularity and excess being sedulously avoided. His diet should be very simple and nourishing; his excretory organs kept in normal action; his hours of sleep long and uninterrupted and spent in a well ventilated room or out of doors; his waking hours carefully supervised (to prevent excessive physical exertion and excitement) and spent wholly in the open air, except during blizzards, cyclones, or torrential downpours. The development of his body should be constantly encouraged, allowing his mental development to proceed, unurged and unhurried, but merely *directed* in its spontaneous unfolding.

The slightest sign of illness should be the signal for summoning a physician, who, when he arrives, should place the patient, at once, in a condition of *absolute rest*, physical and mental, and maintain him in this state during the administration of the indicated remedial measures and until convalescence is well established.

The normal child may be reared under a régime following this with moderate closeness, but not so rigidly carried out except in the matter of the outdoor life, which should be as unquestioned a part of the process of rearing children as feeding them.

Treatment of the attack.—First, ascertain, if possible, the cause of the convulsion in progress and direct the treatment to that. In any of the acute febrile diseases of childhood a convulsion may take the place of the chill which commonly ushers in these disorders; or it may arise from the irritation and toxemia of an overloaded stomach or bowel. In some very susceptible infants the irritation caused by ill fitting clothing, intertrigo, phimosis, or any one of the minor discomforts or inconveniences of life may give rise to a convulsion.

In general, the treatment should consist of a thorough emptying of the stomach and bowels; the former, by an emetic (syrup of ipecac, mustard, and warm water, or other remedy of the sort which may be at hand) by mouth, apomorphine, in appropriate dose, hypodermically, or by means of the stomach tube; the latter by a warm, soapsuds enema, which may, in cases where chronic fecal retention is suspected, contain a little turpentine.

The relaxing effect of the emetic should be supplemented by immersion in warm or hot water for from a few minutes to half an hour. In severe cases a few whiffs of chloroform or ether may be necessary to control the paroxysm. If the pulse is full and bounding, as in acute febrile diseases, carefully adjusted doses of veratrine are exceed-

ingly valuable, and if the nervous element appears to predominate, hyosine hydrobromide, hypodermically, gives good results.

The patient should be put to bed, naked, between soft, warm sheets, and kept warmly covered in a well ventilated room. Hysterical or excited relatives and neighbors should be absolutely excluded, and the patient should be placed, so far as may be, in a condition of perfect quiet.

Treatment between attacks.—A thorough examination should detect the presence of any grave organic disease, treatment of which should be carried forward in accordance with the best ideas of the time. If the symptoms point to meningitis, an exploratory lumbar puncture should be made, having the Flexner serum at hand if possible, for use in case of a positive finding. The trouble may be due to hereditary syphilis or malaria, and so require the administration of mercury or salvarsan in the former case, or quinine in the latter. Any cause of physical irritation, as adherent prepuce, adenoids, intestinal parasites, etc., should be promptly removed.

The prevention of subsequent attacks depends upon the correction of any organic irregularities which may be present, while carrying out, more or less rigidly, the system of life described under the head of prophylaxis.

Dr. Albert M. Bell, of Brooklyn, New York, writes:

Because of the suddenness of onset and the numerous etiologial factors, the treatment of infantile convulsions resolves itself into two rather distinct phases: 1. The treatment of the seizure itself; 2, ascertaining and treating the cause. With but a very brief history, begin treatment at once, leaving the details in history and thorough physical examination until after the tonic condition has been relieved.

My treatment is as follows: 1. Immerse the child in a warm mustard bath, temperature 100° F., subjecting the surface to continuous mild friction. Remove from bath in ten minutes or sooner if there are signs of returning consciousness. Contraindications to bath are: Convulsions due to loss of blood, anemia, diarrhea with inanition, and cardiac disease. 2. Give a warm soapsuds enema. 3. If any suspicion of condition being due to a poison or undigested food in the stomach, give an emetic, usually wine of ipecac, half to one drachm, repeated in fifteen minutes if necessary. Rarely it may be advisable to wash out the stomach with sodium bicarbonate solution, and leave in it some castor oil or magnesium sulphate.

Usually by this time the child is conscious and relaxed, if not a sedative is necessary, and I try first an enema of sodium bromide and chloral hydrate in warm saline solution. If not effectual in twenty or thirty minutes, give a small dose of morphine sulphate, gr. 1/50 to 1/12, by hypodermic injection.

Rarely we see cases in which all these procedures are not effectual in quieting the child, then we resort to sufficient chloroform or ether to produce complete relaxation.

As soon as the convulsion has been relieved it is very essential that the child be thoroughly exam-

ined and the exact etiological factor discovered. If there is an elevation of temperature, look especially for signs of beginning pneumonia, any of the exanthemata, or gastrointestinal intoxication due to contaminated or improper food. Examine the chest and throat very carefully! In this type it is well to guard yourself by mentioning the possibility of a rash appearing later.

If there is no fever we must then look for some cerebral condition, producing pressure and with tonic contractures suggesting some focal condition, or some of the other conditions capable of producing these symptoms, as fright, rachitis, nervous explosions in epilepsy, nephritis, hydrocephalus, chronic diarrhea, cardiac diseases, etc.

When the cause has been ascertained, the treatment for that condition should be instituted at once. If it is impossible to state definitely the cause, the child should be kept quiet, on a fluid diet, with bowels opened, and under observation for at least two or three days.

Dr. Alexander Sterling, of Philadelphia, remarks:

To treat properly infantile convulsion, one has to consider not only the convulsion *per se*, but the developmental phenomena as well as all the conditions possible to bring forth such a state of affairs in our little patient. The etiological factors are the conditions one has to combat, besides the mere relief of the convulsion.

When called to a case one should inquire into history, whether it is, 1, the onset of an acute infectious disease; initial symptoms in practically all of them may be a convulsion, particularly scarlet fever, diphtheria, meningitis, and pneumonia; 2, toxic from autointoxication, from gastrointestinal disturbance and uremia; 3, reflex from teething, worms, otitis media, tumor, causing pressure on the brain, enlargement of thymus or other mediastinal glands; 4, an epileptic convulsion, and unless all the possibilities mentioned are kept in mind, even after the convulsion has been relieved one may overlook the indication for further treatment.

To relieve the convulsion, while administering a few whiffs of chloroform, a hot mustard bath should be ready, one tablespoonful of mustard to two quarts of water, and child kept in it from fifteen to thirty minutes and a high colonic irrigation with two quarts of normal saline, after which the child is put to bed with or without ice to the head and a hot water bottle to the feet, being guided by the pulse and temperature; then a course of calomel followed by an oil. This routine should be observed in every case, excluding sometimes the hot mustard bath as the case may indicate. The necessity of a careful history and physical examination, though the convulsion had subsided, should not be underestimated, for the diagnosis and the indications for special treatment may be overlooked. Sometimes the proper history of a case may save time.

The indications for special treatment are too numerous to mention, and I would only have to enumerate all the infectious, functional, and organic diseases, that one may encounter in his practice and their proper treatment, but sometimes hypnotics or antispasmodics may be indicated in the

form of suppositories, the safest of which I have used with good results, chloral hydrate and sodium bromide, of each grs. ii in cacao butter as often as every hour.

I am in the habit of telling the parents to watch the patient for one or two days, when the diagnosis is difficult, and to call me if there is any doubt in their minds as to the condition of the youngster, explaining the possibilities. This is always appreciated, and on many occasions our doubts are justified.

Dr. J. L. Bressler, of New York, observes:

It depends upon the stage in which we see the patient: 1. If during the paroxysm, measures should be employed to control it; 2, if after the paroxysm has subsided or under control, then measures to prevent recurrence must be instituted.

The seizure is frequently over before the physician arrives. But often it occurs during his presence or lasts until he arrives. In this event, where the convulsion persists or recurs, the patient's clothes should be loosened or removed and patient placed in a warm bath, preferably a mustard bath. At the same time a few drops of chloroform should be administered by inhalation to control convulsions. A high rectal enema of water at 110° F. should be administered. Very often, where a history of taking some irritating food is given, the removal by means of an emetic will cause a cessation of the attack. After the enema, a rectal injection of chloral hydrate, grs. v and sodium bromide, grs. x to xv, is often very efficient in controlling the convulsion. An icebag should be placed to the head.

After the convulsion has been controlled, the treatment resolves itself into ascertaining the cause and eliminating it if possible, and then prevention of recurrence of the attack.

To prevent the seizure from recurring, chloral hydrate and sodium bromide by rectum, repeated every hour or two, with or without a few drops of laudanum, will usually be sufficient. If not, it may be necessary in extreme cases to resort to hypodermics of morphine, in doses of gr. 1/40 to 1/24, at frequent intervals. A dose of calomel or castor oil should be given as soon as convulsion is under control. If fever is present, treatment should be the same as for acute infectious diseases. If rickets is present, measures for hygienic and dietetic improvement should be instituted.

The heart should not be overlooked. Measures for supporting it, both during and between convulsions, should always be taken. And above all, after control of convulsion, measures removing all influences, directly or indirectly the cause, should be instituted.

Therapeutical Notes.

Treatment of Tuberculous Cystitis.—David Newman, in the *Practitioner* for July, 1912, states that in tuberculous cystitis secondary to unilateral renal infection, the bladder condition may heal spontaneously after nephrectomy. At all events, the primary affection must be dealt with first.

Where, some months after nephrectomy, the bladder is still troublesome, notwithstanding open air treatment, diet, tuberculin, tonics, and urinary antiseptics, good results may still be obtained by the introduction into the bladder of four ounces of sterilized olive oil, the patient being instructed to pass water, standing, until he notices the oil coming away, and then to stop. Some of the oil remains in the bladder, generally for twelve or eighteen hours, and assists the healing process. The injection may be repeated every third day.

Should cure be further delayed, instillations of a one to 20,000 or one to 10,000 solution of mercury bichloride in sterile water will often prove very beneficial. This treatment, however, causes considerable pain, sometimes necessitating the previous use of morphine or a general anesthetic. Half an ounce of the solution should be instilled every third day for three occasions, and the treatment then stopped for a fortnight, the patient being kept at rest.

Curetting the tuberculous ulcers or nodules, *per urethram* in the female and through suprapubic opening in the male, is often very helpful. The establishment of a suprapubic drain gives the bladder rest and free exit to the urine. The viscus can then also be regularly douched with a weak boric acid solution, or the ulcers swabbed with pure phenol through a speculum, the action being checked by washing afterward with sodium bicarbonate solution.

Special stress is laid by Newman on the advantages of early suprapubic cystostomy, hitherto chiefly resorted to late in the disease. Experience has shown him that the rest thus given favors repair; in addition, thorough cleansing of the organ is facilitated. When the patient is in bed, a simple apparatus for direct drainage is used whereby the urine may be siphoned out into a cistern. When the patient is able to be up, a baby's feeding bottle is carried in the hip pocket or a rubber urinal worn. Curetting is done a week or ten days after the cystostomy, the intervening period of rest being advantageous.

Treatment of Burns.—The following formulas are suggested in *Gaceta Médica Catalana*, November 15, 1912, for use in burns:

1.
℞ Salicylic acid, ...grs. viiiss (0.5 gramme);
Zinc oxide, ...3iiss (10.0 grammes);
Powdered starch, ...3x (40.0 grammes).
Fiat pulvis.

2.
℞ Boric acid, ...gr. xlv-lxxv (3.5 grammes);
Basic aluminum acetate solution (N. F.), ...3iiss (10 grammes);
Lime water, ...3x (40 grammes);
Liquid petrolatum, ...3xiiss (50 grammes).
Misce.

3.
℞ Bismuth subnitrate, ...grs. cxxxv (9 grammes);
Boric acid, ...grs. lx-lxxv (4.5 grammes);
Hydrated wool fat, ...3xviii (70 grammes);
Petrolatum, ...3iiss (10 grammes).
Fiat unguentum.

4.
℞ Anhydrous wool fat, ...gr. xv (1 gramme);
Hydrogen dioxide solution, ...℥xxx (2 grammes);
Oil of rose, ...gtt. ii.
Fiat unguentum.

5.

℞ Liquefied phenol, ...℥xxv (1.6 grammes);
Powdered dextrin, ...3iv (125 grammes);
Tincture of aloes, ...3ii (65 grammes);
Brandy, ...3i (30 grammes);
Lead acetate, ...grs. xlv (3 grammes);
Tannic acid, ...grs. xv (1 gramme);
Cherry laurel water, ...3v (150 grammes).

(The dextrin is first dissolved in the brandy and tincture, the acetate and tannin then dissolved in the water and mixed with the former, and the phenol finally mixed in).

Balsamic Remedies in Chronic Bronchitis.—To Hirtz, in *Presse médicale* for December 7, 1912, is credited the statement that since all balsamic drugs are badly borne when taken internally, this route of introduction should be avoided wherever possible. Inhalations may be tried, as follows:

℞ Creosoti, ...3vi (25 grammes);
Tincturæ benzoini, ...3v (20 grammes);
Eucalyptolis, ...3iiss (10 grammes);
Thymolis, ...3v (20 grammes);
Alcoholis, ...3vi (200 grammes).
M. Sig.: Place two tablespoonfuls in boiling water and inhale.

In children, some balsamic ointment such as the following may be very gently rubbed over the chest:

℞ Olei terebinthinæ, ...5i (4 grammes);
Adipis lanæ hydrosi, { āā 3i (30 grammes).
Petrolati, {
M. ft. unguentum.

Where external medication proves insufficient, balsamics may be cautiously given by mouth:

℞ Balsami tolutani, }
Picis liquidæ, } āā gr. i (0.05 gramme).
Sodii benzoatis, }
Ft. in pilulam No. i. Da tales No. xxx.
Sig.: One pill three or four times a day.

Or,

℞ Benzoini, }
Picis liquidæ, } āā gr. i (0.05 gramme);
Pulveris ipecacuanhæ et opii, . . .gr. ss (0.03 gramme).
Ft. in pilulam No. i. Da tales No. xxx.
Sig.: One pill five times a day.

Or, again,

℞ Terpini hydratis, }
Sodii benzoatis, } āā gr. i (0.05 gramme);
Codeinæ, ...gr. 1/20 (0.003 gramme).
Ft. in pilulam No. i. Da tales No. xl.
Sig.: Six to eight pills a day.

Where the purulent expectoration in certain forms of bronchitis proves refractory to the above mentioned balsamics, creosote by inhalation or ingestion should be employed.

Treatment of Anal Fissures.—Fath, in *Semaine médicale* for October 2, 1912, is said to have resorted to the following procedure in the treatment of a case of anal fissures accompanied with much pain, which cocaine and ichthyol had failed satisfactorily to relieve: The patient, after defecation and a tepid sitz bath, was placed in the genupectoral position, and asked to contract the abdominal muscles, with glottis closed. To the fissures, thus rendered clearly visible, bismuth subnitrate was applied, with a surprising degree of benefit. A similar application was made every morning and evening for two weeks, at the end of which time the condition was wholly cured. There was no sign of recurrence subsequently.

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THE COMMERCIAL VERSUS THE PRO- FESSIONAL ASPECT OF THE SALES COMMISSION.

While it is said to be a sound business principle to give commissions to those influencing or controlling sales, it is contemptible for a physician to accept them secretly, knowing that the patient must thereby be forced to pay more for the goods that he has prescribed. The confidence in the skill and honor of the physician that the patient expresses by seeking his advice, demands that the physician hold himself worthy of that confidence. The answer to all the questions suggested by the topic under discussion should be to let the patient know all the details of any purchase and decide for himself the disposal of any discounts or commissions.

The method of dealing with the commission evil that most strongly commends itself is the one adopted by the Jefferson Hospital, Philadelphia, which is to decline to purchase goods from a business firm that offers or gives commissions to physicians.

The consideration of this disagreeable subject at this time is due to the receipt of a printed form of a letter from a manufacturer of a kind of clothing that often may be advantageously employed upon the advice of a physician. The printed form

of the letter indicated its extensive use. The intended tactfulness of its contents appeared seductive. The fact that the patient unconsciously paid twenty-five per cent. more than the goods were worth was convincing:

Dear Doctor: Enclosed we send check in settlement for discount on goods sold to your patients who did not bear your card instructing us to allow them the discount. Hope the goods have been fitted to your entire satisfaction. Respectfully.

To this, the following answer was sent:

Gentlemen: Yours of December 15th to hand, and I, herewith, return your check to my order which you state is a twenty-five per cent. commission to me for the sale of goods ordered by me for my patients.

I note your statement "enclosed we send check in settlement for discount on goods sold to your patients who did not bear your card instructing us to allow them the discount." I desire to say that I had no knowledge of your methods or I should have notified my patients that they were to obtain a discount of twenty-five per cent. on all goods purchased from you. The patients for whom I have ordered these articles have paid me for professional services and I cannot find any reason to accept a commission from you. I have notified them that you will send them each three dollars which you have overcharged them. In order to be sure that you have the correct addresses, I, herewith, append them.

Secret commissions to physicians who prescribe appliances or clothing for their patients are reprehensible and unjustifiable. The patients for whom these articles were ordered had confidence in me and paid twelve dollars for goods that you now state were worth only nine dollars. I can justify my action only by a frank confession to them of my error, deeply regret the occurrence, and avoid a recurrence in the future.

The very secrecy that is resorted to condemns the procedure, for the manufacturer well knows that this form of business thrift on his part is a dishonest practice on the part of the physician. This form of bribery which induces physicians to send their patients to "our store" for personal gain is strongly condemned by the profession, whether it be commissions from the apothecary, the optician, the manufacturer of proprietary or patent medicines, of health giving natural spring waters, artificial limbs, trusses, or orthopedic apparatus. Very truly yours.

In 1894 we discussed this problem with reference to orthopedic instruments and here reproduce a few statements from instrument manufacturers which speak for themselves:

A few days ago I reduced the prices of artificial limbs about one third and made an effort to keep the prices unvarying, without reduction or commission to any one. I soon found that in order to get any business from the profession it would be necessary to allow a discount, and I have since made a practice of discounting ten per cent. from the quoted prices on artificial legs. Taking a financial view of it, I am satisfied that it was a mistake to reduce the prices. I believe that I could more easily sell an artificial leg through the average practitioner at \$100 with a twenty-five per cent. discount than I could by placing the advertised price at \$60 or \$70 with a ten per cent. discount, with every assurance that the construction of the limbs would be the same. It is unquestionably true, how-

ever, that many physicians give the patients the benefit of the discount.

We would be glad to see all commissions abolished, as it opens the door to many methods which are rank injustice to patient, merchant, and doctor.

We have never under any circumstances allowed a commission on apparatus or appliances to anybody, in a business career of over fifty years, although we have had numerous requests to do so, and have likely lost a number of cases in consequence.

AUTOMOBILE CREMATORIES IN WAR.

The Balkan war just ending has been one of the bloodiest and most ferocious in history; many thousands have been left dead on the various battlefields. One may say rather, the whole Balkan peninsula has been one vast field of carnage, into one little corner of which the field of Waterloo would fit; even after Metz in the Franco-Prussian war there remained 30,000 improperly buried bodies. The taint of many thousands of unburied and decomposing bodies is perhaps the most horrible of the many ghastly features of war and the resulting pestilence one of its most dreadful after effects. Automobile crematories were used to some extent in the Russo-Japanese war; and Blau, a German military surgeon, declared that such means of incinerating the bodies of the slain would be a necessary adjunct in all future wars. In this Balkan war, however, crematories seem to have had no part whatever in the problem of how to dispose of the dead, who seem indeed to have been left most pitifully to themselves. Only killing, and not its aftermath, seems to have been provided for.

THE INCREASE OF PELLAGRA IN THE UNITED STATES.

Pellagra was first recognized as existing in the United States in 1906 and early in 1907. Owing to the fact that the disease is chiefly confined to those States which have inadequate laws for the collection of vital statistics, it is impossible to determine with accuracy either its exact rate of increase or its degree of mortality. C. H. Lavinder, of the Public Health Service, has conducted an inquiry extending over the greater part of the past year which had for its object the determination of these factors. In his preliminary report (December 13, 1912) he states that from the evidence in hand we are justified in concluding that this disease, which was unknown to us five to six years ago, has already claimed 30,000 victims, with a case fatality rate of over thirty-nine per cent. The data at hand also indicate that the area of distribution is extending. Generally speaking, we may say that pellagra is prevalent in all the southern States, and

sporadic in all others, except New Hampshire in the east, and a group of eight States in the west, which includes Idaho, Minnesota, Montana, North and South Dakota, Utah, Wyoming, and Nevada. Although none of these States has yet reported the disease, the rapid spread over the other parts of the country seems to indicate that it is only a question of time until there will be no section entirely free from its ravages. Although the total number of victims does not yet warrant us in comparing pellagra with such a disease as typhoid fever, the quick extension over such a wide area in such a comparatively short length of time, together with the exceedingly high mortality rate, seems to justify the conclusion of Lavinder that the matter has reached the dignity of a public health question of National importance.

RURAL OR EXTRAURBAN TYPHOID FEVER.

It comes with something of a shock to be told that typhoid fever is not really a rural disease, and yet that is what is clearly demonstrated in a recent able paper by Sedgwick, Taylor, and MacNutt. These authors have carefully examined the mortality statistics of Massachusetts, a State having trustworthy records for many years back, and found that typhoid fever is associated with small villages and towns rather than with districts which might be considered actually rural. Nor is this surprising when we reflect that it is usually in the small villages and towns that unsanitary conditions abound, whereas in both large cities and the rural districts conditions in this respect are generally much better.

We note, however, that the authors insist on strictly limiting the term "rural" to its exact meaning. Most writers in using the expression "rural typhoid" or "rural origin of typhoid" have in mind country districts distinguished from cities; in other words, extraurban and urban districts. This use of the term, while not strictly correct, is distinctly valuable in calling attention to an important epidemiological fact, that much city typhoid fever is of extraurban origin. Moreover, we cannot admit that "the question at issue is simply whether in proportion to the population, typhoid fever is more prevalent over rural or over urban areas." This is also a question to be decided, but it is not the burning question, which is the relative importance of typhoid fever in the city and in the country. What we want to know is the relative danger, to the city dweller, of contracting typhoid fever from a rural source, and the danger, to the rural dweller, of contracting typhoid fever of city origin. With

practically all his water and food supplies coming from the country, and with typhoid fever preeminently a waterborne and foodborne infection, it must be admitted, we think, that the city dweller runs far the greater danger. Do we not all know of instances in which a single case of typhoid fever on a dairy farm has given rise to hundreds of typhoid infections in the city; of a single case of typhoid fever in the country contaminating the water supply of a large city and causing therein an extensive epidemic of typhoid fever? And how, aside from carriers, can typhoid infection ordinarily be carried from the city into the country, except by persons visiting the city and becoming infected there? It is impossible, merely by comparing the typhoid fever death rates of urban and rural communities, to gain an accurate conception of the relative danger of typhoid infection from the two communities. In one way or another a very large part of the typhoid infections in a large city are chargeable to infection from without, and there is no doubt that the proportion carried in the opposite direction is relatively small. On the whole, it will be best to hold to our present epidemiological conceptions concerning the significance of extraurban typhoid infections, but for the sake of accuracy, let us not use the term rural when we mean merely extraurban.

ADENOIDS IN NURSRLINGS.

Durif states, in the *Annales des maladies de l'oreille, du larynx, du nez et du pharynx*, 1912, that adenoids in babies have been recognized, since Luby-Barbon's description (1891), as not uncommon. About five per cent of persons with adenoids are children under two years of age. In the fetus the pharyngeal tonsil (adenoid) exists at first as a diffuse lymphoid infiltration: toward the ninth month the follicles begin to appear. Marfan, noting the frequent coexistence of adenoids with rachitic manifestations, attributes them both to the same causes, viz., the chronic intoxications of infancy, not forgetting a bad heredity, as lues, tuberculosis, alcoholism, etc. He attributes the chest malformation to the rickets rather than to the presence of adenoids. In examining infants for adenoids, the author notes that the fifth finger is useful when the index cannot be inserted in the vault because of the smallness of the parts. Also an educated touch can at times palpate adenoids through the soft palate. Failing these, a forceps will reveal the growths and remove them. The following complications may follow adenoids in nursrlings:

Suppurative adenitis with fever, which may give a retropharyngeal abscess. If the Eustachian tube becomes involved, the whole gamut of otitic affections may be seen, including mastoid complications. Deaf mutism may follow the otitis. The infection under la grippe may involve the frontal sinus region, whatever its ana-

tomical condition may be. The rhinopharyngeal catarrh may spread to all parts of the air passages, and carry off the patient. A progressive emphysema may be established by the occlusion of the air passage. The diagnosis is made on troubles of respiration or of alimentation, or on the presence of reflex phenomena, as laryngeal spasm, asthmatic attacks, or nocturnal cough. Atresia of the cloanæ, specific coryza, retropharyngeal abscess, laryngeal diphtheria, and laryngeal malformation are to be differentiated; and the cough, at times suggesting pertussis, must be determined not to be due to mediastinal compression as from enlarged thymus gland (x ray). Medical treatment failing, the usual surgical treatment gives rapid and excellent results, reestablishment of nasal breathing, regular feeding; and the development of the child, until this time retarded, progresses normally.

SALVARSAN IN TREATMENT OF CHOREA.

Pierre Marie and Charles Chatelin, in *Bulletin de l'Académie de médecine*, for December 10, 1912, state that they gave intravenous injections of salvarsan or neosalvarsan in twenty-five cases of severe or moderately severe chorea, with results so good that they now consider this to be one of the methods of choice in treating the disease. The average number of injections was four, at weekly intervals, and the dose 0.2 to 0.35 gramme, the latter only in adolescents. No untoward phenomena were observed except temporary malaise in a few cases in which salvarsan was used; neosalvarsan was well borne. After the second and especially the third injection, the choreic movements were markedly diminished. Complete recovery soon followed, the total duration of the affection being commonly reduced to three weeks or a month, compared with six weeks to three months in cases not so treated. None of the cases proved refractory to the treatment. Especially noticeable was the improved general condition, with return of appetite and gain in weight, even where the effect on the choreic movements seemed to be less rapid than usual. The oldest patient treated was nineteen years of age, the youngest eight.

PASSAGE OF CARBON MONOXIDE FROM MOTHER TO FETUS.

Maurice Nicloux, at one of the recent meetings of the Académie des Sciences, as reported in *Semaine médicale* for January 1, 1913, gave details concerning an experiment he had devised to demonstrate the way in which carbon monoxide passes from the maternal to the fetal circulation. In a large ellipsoid glass receptacle, he introduced from eight to ten litres of distilled water, or seven per cent. saline, and in this he placed a small fish and an ox's cecum, carefully examined to exclude any possible rent, containing one litre of beef blood impregnated with carbon monoxide (*oxycarboné*). The water surrounding the fish remains quite colorless, but two hours later, when the fish is examined, it is found to be intoxicated, its blood containing a nota-

ble percentage of carbon monoxide. This experiment, says Nicloux, demonstrates absolutely the method in which maternal blood is conveyed to the fetus, also the mechanism of placental and tissue respiration; the plasma alone is the conveying medium, both of carbon monoxide in cases of fetal poisoning and of oxygen in ordinary respiration.

Obituary.

WOLFRED NELSON, M. D.,
of New York.

Dr. Wolfred Nelson died on Wednesday, January 15th, in his sixty-seventh year, at the Hudson Street Hospital, where he had gone some days before for treatment of a chronic cardiac insufficiency. He was born in Montreal, Canada, in 1846. His father, Dr. Horace Nelson, had distinguished himself in the Dominion troubles of 1837. Dr. Wolfred Nelson was educated at McGill University in arts, science, and medicine, graduating in the latter in 1872. Subsequently he traveled extensively in Central America, Mexico, and the West Indies, making research into tropical diseases and communicating some of his conclusions to the *New York Herald*; he underwent a severe attack of yellow fever in 1886, and wrote copiously on that disease during the next few years. He practised in New York from 1888 until his death, maintaining his office in the postoffice district despite the upward march of the city. He was for some time an editorial contributor to the *NEW YORK MEDICAL JOURNAL*. Doctor Nelson was a man of unusual earnestness and enthusiasm and had an immense circle of acquaintance among distinguished people in this country and Europe. He was once president of the New York Society of McGill Graduates. He leaves a widow and a married daughter.

Medical Law.

IX. CRIMINAL MALPRACTICE.

The essence of a criminal act is usually a criminal intent, although it frequently happens that the intent is presumed from the nature of the act. In the case of *State vs. Dargatz*, 148 Southwestern Reports, 889, it seems from the evidence before the court that the reverse of this situation existed. Here there was direct, although contradicted evidence of a wrongful intent. The evidence as to the act itself suggests strongly a chain of circumstances in which any doctor, regardless of the correctness of his intent, is liable at almost any time to become involved.

The substance of the evidence introduced by the State is as follows: On September 12, 1910, the defendant, a practising physician, was called upon by William A. Hawkins, who requested the defendant to perform an abortion on his wife, stating that his wife had been pregnant for more than a month and was not willing to bear a child. Defendant first declined to perform the operation, but, on being told that Hawkins's wife was determined

not to give birth to a child and would probably commit suicide if she was not relieved of pregnancy, consented to perform the operation for the sum of \$10. On September 13, 1910, Hawkins brought his wife to defendant's office; at about 5 o'clock in the afternoon of that day defendant attempted to produce an abortion by inserting instruments into her uterus, and also placed a considerable quantity of gauze in the uterus. This operation did not really produce a miscarriage, nor any immediate results. About twenty-four hours later, Mrs. Hawkins became violently ill, and some ten hours later died. A post mortem examination, held the day of her death, did not indicate the presence of any disease or wound, except that her womb and ovaries were black and swollen with clots of decomposed blood inside the womb, which, in the opinion of the coroner, were produced by some outside interference which had destroyed a living fetus three or four weeks old.

The coroner gave it as his opinion that Mrs. Hawkins died from a septic infection brought about by an operation to produce miscarriage, and that said operation might produce death within thirty or forty hours.

The evidence of the coroner was challenged on this point by the evidence of physicians summoned by defendant, who testified that such an operation as Mrs. Hawkins had undergone at the hands of defendant would not produce death so soon as thirty hours; that death, when produced by an attempted miscarriage, would usually not occur sooner than six days, and often not that soon.

Defendant in his own behalf testified that he agreed to treat the wife of Hawkins for \$10, but did not agree to bring about a miscarriage; that upon being informed that Mrs. Hawkins had determined to get rid of her pregnancy, he surmised that something was wrong with her; that, upon examination, he found her womb in an unhealthy and "doughy" condition, the neck being dilated, and a foul smelling froth running out, which he thought indicated the existence of a dead fetus inside. Defendant further testified that, to relieve Mrs. Hawkins, he inserted in her womb some medicated gauze, first thoroughly cleaning his instruments to prevent infection; that his treatment was necessary to relieve the womb of Mrs. Hawkins of the dead matter therein and to preserve her life.

The defendant was convicted of the "felony of abortion," and was sentenced to imprisonment in jail for one year and the payment of a fine of \$250.

Upon appeal this conviction was set aside, on the ground that the indictment charged manslaughter, resulting from defendant's criminal operation, and that under that charge it was improper to find defendant guilty of producing a criminal abortion. The judgment was accordingly reversed and the case sent back for a new trial.

The apparent weakness of the doctor's case is that upon discovering the condition of his patient he did not disclose it to her and her husband. Had he done this, and certainly had he availed himself of the protection of a consultation, he would have found himself in a much better position upon the trial, and, it is probable, would have avoided the serious results of a criminal accusation.

X. THE PHYSICIAN AS WITNESS.

In the case of Norton vs. Clark, 97 Northeastern Reports, 1079, which was a will contest case, the contestant was attempting to show undue influence exercised by the residuary legatee, and among other things endeavored to show that improper relations had existed between the testatrix and the residuary legatee. It appeared from the evidence introduced in the case that for about fifteen years before her death testatrix had suffered from a fibroid tumor of the uterus, and that of late it had grown to a great size so as to weigh from fifteen to twenty-five pounds. Upon the trial of the case the proposition of the will introduced the evidence of the physician who had attended deceased for a period of fifteen years before her death and made frequent examinations of her at various times and who, in answer to the questions put to him, stated that it was his opinion that during all of the time it would have been very painful to the deceased and almost impossible for her to have committed any act such as she was charged with. Upon motion of the contestant the court struck out this answer of the physician, but upon the review of the case the Supreme Court held that the physician was qualified to give an opinion and it was based upon physical examinations made while attending deceased as her physician; that as he had stated quite fully the conditions existing, it was error to exclude his professional opinion.

News Items.

Harvey Society Lecture.—The sixth lecture in the course will be given this evening at the New York Academy of Medicine by Major J. J. Russell, of the United States Army, his subject being the Prevention of Typhoid Fever.

Hospital Saturday and Sunday Association Fund.—At the annual meeting of this association, held in New York on January 13th, the treasurer reported that he had received \$45,228.10, an increase over the amount received a year ago at this time.

Cortland County Medical Society.—Dr. M. L. Halbert, of Cincinnatus, was elected president of the Medical Society of the County of Cortland, N. Y., at the annual meeting of the society, held on the evening of December 26th. Other officers were elected as follows: Dr. R. P. Higgins, vice-president; secretary, Dr. Robert E. Riley; treasurer, Dr. F. S. Jennings; delegate to the meeting of the State society, Dr. M. M. Lucid.

Physiological Laboratory of the Polhemus Memorial Clinic.—The college faculty of the Long Island College Hospital has issued invitations for the opening of the new physiological laboratory of the Polhemus Memorial Clinic on Wednesday, January 20th, at three o'clock, p. m. An address will be delivered by Dr. John C. Cardwell, associate professor of physiology, and the laboratory will be open for inspection until five o'clock.

Society of American Bacteriologists.—The meeting held in New York, December 31, 1912, and January 1 and 2, 1913, was one of the most successful the society has ever had, both in general interest, as evidenced by the large attendance at each session, and in the importance of the papers presented. The following officers were elected: President, Professor C.-E. A. Winslow, American Museum of Natural History, New York; vice-president, Professor Charles E. Marshall, Massachusetts Agricultural College, Amherst; secretary-treasurer, Dr. A. Parker Hitchens, of Glenolden, Pa.; council, Dr. W. J. MacNeal, Dr. L. F. Rettger, Dr. H. Bergey, Dr. H. A. Harding; delegate to Council of American Association for the Advancement of Science, Professor S. E. Prescott.

Changes in the Council of the New York Academy of Medicine.—Dr. Charles F. Adams has been appointed recording secretary of the New York Academy of Medicine, succeeding Dr. J. H. Huddleston. Dr. H. Seymour Houghton has been made chairman of the committee on admission, and Dr. C. N. B. Camac, chairman of the committee on library. New trustees appointed are Dr. John H. Huddleston and Dr. Wisner R. Townsend, succeeding Dr. Abraham Jacobi and Dr. Arthur M. Jacobus.

Italian Medical Society.—At the annual meeting of this society, held in New York recently, the following officers were elected: President, Dr. P. Virdone; vice-presidents, Dr. A. Carini and Dr. W. Perilli; treasurer, Dr. G. De Maffutis; secretary, Dr. D. Petillo. The aim of this society is to promote good fellowship among the Italian physicians in the United States and to encourage scientific work among its members. The society meets every fourth Friday and its meetings are open to the medical profession.

Department Merger at Carney Hospital, Boston.—An important change at Carney Hospital will go into effect on February 1st, when the ear, nose, and throat departments, which have heretofore been independent, will be combined into one department, with Dr. Edward M. Plummer as surgeon in chief. Doctor Plummer will have as his staff three surgeons, Dr. John T. Sullivan, Dr. Timothy J. Shanahan, and Dr. Dana W. Drury, and six assistant surgeons, as follows: Dr. John L. Lougee, Dr. D. Campbell Smythe, Dr. William J. Sheehan, Dr. Frederick A. Bogan, and one other whose name has not yet been announced.

Exclusion of Insane and Mentally Defective Immigrants.—At a conference of alienists held recently in New York for the purpose of considering the most practical methods of securing protection against the admission of insane and mentally defective immigrants into the United States, resolutions were drawn up regarding the exclusion of such undesirable citizens, and after full discussion and careful consideration were unanimously adopted. These resolutions, which have been sent to the chairman of the Senate Committee on Immigration and to the chairman of the House Committee on Immigration, were signed by members of seven important scientific bodies, and may be said to embody the opinions of those best qualified to judge as to measures likely to prove most successful in the exclusion of mentally defective immigrants, and it is hoped that congress will give the recommendations weight in legislation upon this subject.

To Create New Positions in the Health Department.—In his annual report to the Legislature, Dr. J. J. O'Connell, health officer of the port of New York, recommended the creation of thirty-seven new positions in his department, carrying salaries that total \$35,000 a year. The report says that the expenditures for this department were \$50,000 less in 1912 than in 1911. Among the positions which the legislature has been asked to establish are a chief medical officer to have supervision over the station and hospitals at \$5,000 a year, an engineer to supervise improvements, at \$4,000 a year, a bacteriologist's assistant at \$2,500, and another at \$1,500. Doctor O'Connell also recommends the establishment of a branch post office for his department, and the erection of a memorial tablet to commemorate the services and death "in the cause of civilization" of Dr. Edward Fiske Ashley, assistant bacteriologist, who died in 1911 of spinal meningitis, contracted while in the performance of duty.

Medical Association of the Greater City of New York.—The annual meeting of this association will be held in Hosack Hall, New York Academy of Medicine, on Monday, January 20th, at 8:30 p. m. Officers will be elected to serve for the ensuing year, and the reports of the council, the corresponding secretary, and the treasurer will be submitted. After the business meeting a scientific programme will be presented. A paper on High Tension Electricity as a Remedy, accompanied by a demonstration of methods and cases, including sarcoma and hepatic cirrhosis, will be read by Dr. J. Herman Branth, which will be discussed by Dr. Frederick de Kraft, Dr. Francis A. Scratchley, Dr. Albert C. Geyser, and Dr. G. F. Samarelli. Dr. William Seaman Bainbridge will present a paper on Some Newer Methods of Treatment of Malignant Disease, with a demonstration of lantern slides and cases. This will be discussed by Dr. Robert T. Morris, Dr. Gordon K. Dickinson, of Jersey City, Dr. Herman J. Boldt, Dr. Edward M. Foote, Dr. Worthington S. Russell, Dr. D. S. D. Jessup, Dr. Frederick J. Fox, and others.

Recommendations Made by the Illinois State Board of Health.—At a meeting of the State Board of Health of Illinois, held in Springfield, January 11th, an amendment to the medical practice act was recommended, whereby midwives might be empowered to use medicines for the prevention of ophthalmia neonatorum. An appropriation for the purchase and distribution of the medicines necessary was also recommended. Typhoid fever vaccination received the endorsement of the State board of health, and an appropriation for the purchase and free distribution of antityphoid vaccine for the prevention and suppression of typhoid fever throughout the State was also asked for. A State colony for epileptics was endorsed by the members and an appropriation for the same recommended, with the proviso that this institution should not take precedence over a State sanatorium for consumptives, recommended in the annual report. These recommendations are aside from those included in the annual report to the governor, which covered an increase in the general appropriations for sanitary purposes; a special appropriation for dairy inspection; a continuance of the appropriation for the free distribution of diphtheria antitoxine; a new birth and death act, enabling the State board of health to obtain a better registration of a State sanatorium for consumptives.

A Museum of Exhibits at the Seventeenth International Congress of Medicine.—Arrangements are being made for the organization of a museum of exhibits in connection with the Seventeenth International Congress of Medicine, to be held in London next August. A committee has been formed, with Professor A. Keith, of the Royal College of Surgeons, as chairman, to take charge of the matter, and regulations governing the museum have already been drawn up. This museum will consist of exhibits illustrating subjects to be discussed in the various sections of the congress, and such other material as the committee may deem of interest or importance. The specimens will embrace the scientific side of medicine, to the exclusion of the commercial element. Excellent accommodation has been secured for the purpose in the Imperial College of Science, South Kensington, and the museum will be arranged in this place as far as possible. It has also been decided that, inasmuch as the meeting is to be held in London, and visitors will no doubt desire to visit the Metropolitan hospitals and other great institutions, material cannot be collected from the museums of London. The committee is therefore seeking exhibits from provincial and foreign institutions and from private collections. Medical practitioners and scientists who are willing to place at the disposal of the committee material illustrative of recent advances in any branch of medical science are requested to communicate with the secretary of the Museum Committee (H. W. Armit, Ravenhurst, Talbot Road, Wembley). The committee is prepared to defray the expense of transit of the exhibits and to insure them against damage and loss, and will take every precaution to return them in good condition to their respective owners. Exhibitors will be invited to hold demonstrations in the museum on their own specimens.

Personal.—Dr. Frank B. Granger has resigned as chief of the x ray department of the Boston Dispensary, and Dr. Frank A. Davis has been named his successor. Doctor Granger was appointed consulting physician.

Dr. William C. Sandy, an assistant physician in the New Jersey State Hospital for the Insane, has resigned to accept a similar position in the Kings Park Hospital, New York. Doctor Sandy will assume his new duties on February 15th.

Dr. J. Edgar Paullin, of Atlanta, was installed as president of the Fulton County, Ga., Medical Society, at the annual meeting of the association held on the evening of January 3d. Dr. W. A. Selman is the new secretary of the society, succeeding Dr. R. R. Daly.

At the annual meeting of the medical board of the Cumberland Street Hospital, Brooklyn, Dr. William H. Pierson was elected president for the eleventh consecutive time. Dr. A. G. Warner was elected vice-president, Dr. O. S. Ritch, secretary, and Dr. W. S. Pallister, treasurer.

Dr. A. L. Muirhead, for three years vice-dean of Creighton Medical College, Omaha, Neb., has been appointed dean, succeeding Dr. De Witt C. Bryant, who has been dean of the college for nearly twenty years and is retiring to devote his time to private practice.

Dr. J. M. Flanagan, of Shamokin, Pa., has been elected president of the Northumberland County Medical Society.

Trained Nurses Needed in the Far East.—Five trained nurses are wanted at once in missionary hospitals in Turkey, India, and Ceylon. The work is essentially religious and Christian, and requires women who are in full sympathy with its missionary purpose. Women who have administrative capacity and the ability for training other women in nursing will find opportunity for work that is greatly needed. The missionary hospital has introduced the profession of nursing to women in the East. In Turkey the government has prevented the sending in of women physicians and there is great need for the training of native nurses. The need in India is no less urgent and important, where social customs and caste isolate the women from uplifting influences and medical attention. All appointments are made by the American Board of Commissioners for foreign missions, which provides traveling expenses and living quarters, in addition to the regular missionary salary. Inquiries may be addressed to Mr. Wilbert B. Smith, 125 East Twenty-seventh Street, New York, N. Y.

A Bureau of Information at the Academy of Medicine.—For the purpose of furnishing information on medical subjects to the local profession and to visitors to New York, a bureau of information has been established at the New York Academy of Medicine, under the direction of the Society for the Advancement of Clinical Study in New York. It is thought that this bureau will make more readily available the large clinical opportunities that are always here. The medical profession of New York and Brooklyn is requested to furnish the bureau with information regarding such of their clinical work which they are willing any physician should visit. Surgeons are requested to send regularly each day, as early as possible, a list of the operations they have arranged for the following day. The Academy of Medicine telephone, Bryant 974, is available for this purpose, or the mail may be used whenever there is sufficient time. An attendant in charge of the bureau will be at the academy daily after nine o'clock, for the express purpose of receiving all information, and promptly posting the same on the special bulletin board, which has been installed. The attendant is ready to give every assistance in furnishing information. Subscribers to The Society for the Advancement of Clinical Study in New York may arrange with the attendant to be notified when any special work in which they are interested is posted. Any information as to autopsies, laboratory demonstrations, lectures, medical clinics, and operations is desired. The bureau is supported by funds furnished by The Society for the Advancement of Clinical Study in New York and the medical profession is urgently requested to lend its aid by joining the society. For particulars apply to the attendant of the bureau.

New Year Honors in Great Britain.—We learn from the *British Medical Journal* that among the New Year honors conferred by King George is that of knighthood to be received by Dr. R. W. Philip, physician to the Royal Infirmary and senior physician to the Royal Victoria Hospital for Consumption, Edinburgh, in recognition of the pioneer work he has done in the organization of a coordinated system for dealing with tuberculosis. The same honor is conferred on Dr. George Turner, formerly medical officer of health for the Transvaal, and medical superintendent of the Pretoria Leper Asylum, whose services in these capacities were conspicuous; and on Dr. David Hardie, of Brisbane, member of the Medical Board and Central Board of Health, Queensland. Inspector General Duncan Hilston, R.N., C.B., honorary physician to the King, formerly in charge of the Royal Naval Hospital, Haslar, is promoted to be K.C.B. The Kaiser-i-Hind Gold Medal is conferred on Major H. W. Grattan, R.A.M.C., officer in charge of the enteric fever convalescent depot at Naini Tal; on Dr. J. Andrew Turner, health officer to the Bombay municipality; on Major E. Reinhold Rost, I.M.S., senior civil surgeon, Rangoon, whose name is known for his researches on the morphology of the lepra organism, and the treatment of leprosy; and on Major E. L. Ward, I.M.S., Punjab. Knighthood is accorded also to Mr. Francis Darwin, who, after studying medicine at St. George's Hospital and graduating M.B., became personal assistant to his illustrious father, and has won distinction as a botanist. The same honor is conferred on Mr. Stewart Stockman, chief veterinary officer to the board of agriculture. Professor Wyndham Dunstan, formerly lecturer on chemistry in the medical schools of Oxford and St. Thomas's Hospital and at the Pharmaceutical Society, becomes C.M.G.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 4, 11, and 18, 1912.

Tabes and Trauma.—Schultze says that although tabes is one of the most common affections of the nervous system, it can very rarely be traced to trauma. He reports three cases in which at first there seemed to be a causative relation between trauma and the tabetic process, but the result of careful investigation was negative.

Arsenated Wall Paper.—Kuttner relates three cases of arsenical poisoning caused by the poisoned dust from the wall paper. He urges in cases of intestinal catarrh and severe anemia where the etiology is not clear, the consideration of the above mentioned cause.

Disposition of Lung for Tuberculosis.—Serog's cases show that any factor interfering with the proper function of the lung increases the predisposition to tuberculosis in a marked degree.

Metastatic Cancer Tumors of the Skin.—Askanazy reports a case of metastatic cancer of the nerves of the skin. The patient was able to foretell the location of a new nodule in the skin twenty-four hours before its appearance. This was due to a peculiar oversensitiveness of the skin.

Penetrating Cancerous Ulcer.—Strauss demonstrates this case in which an exact diagnosis was made before operation and discusses fully the differential diagnosis between ulcer penetrans carcinomatosus and noncarcinomatous ulcer.

Phenolsulphophthalein in Functional Kidney Diagnosis.—Vogel believes that phenolsulphophthalein will in a short time attain an important place in the functional diagnosis of the kidneys, on account of its rapid and complete excretion through the kidneys, its reliability, and the possibility in most cases of determining by the calorimeter the total amount of excretion and thus to gauge the sufficiency or insufficiency of the kidneys.

Joha, Salvarsan Preparation.—Lindenheim found that johas possess all the advantages of salvarsan. It rapidly influences the skin and mucous membranes in malignant lues. With proper technic no disadvantageous side actions resulted. It is easily given to ambulatory patients. It is contraindicated in diseases of the heart, including dilatation.

Active Typhoid Vaccination.—Bessau says, in his address to the Congress of the Royal Institute of Public Health, that the only safe immunity in typhoid is the bacteriological one. The production of the bacteriolysin is conditioned by the endotoxins. The chief point in vaccination is to provide the organism with the endotoxine in the original form. Therefore a certain amount of poisoning is unavoidable in typhoid vaccination. The poisonous effects, however, are not dangerous.

Curative and Protective Vaccination in Tuberculosis.—Friedmann says that we have a right to believe that the antigens are contained in the bacilli. That the tuberculins have one fault, namely, that they are composed of virulent toxic material. It would be advisable to work with avirulent atoxic material. He treated 1,012 patients

with his preparation. No matter in what form it was given it proved atoxic and avirulent. A filtrate must be formed and completely resorbed. In these cases the most brilliant results are obtainable. If the filtrate is not absorbed the healing process remains stationary. With simultaneous treatment, that is, alternating intravenous with subcutaneous injections, he has avoided disturbances. In bone and joint tuberculous processes fistula did not return; beside three fatal cases, twelve severe cases were cured. In pulmonary cases where disintegration is not too far advanced the improvement is rapid and progressive. The fever soon disappears and the subjective symptoms also. Loss of weight ceases, and a satisfactory gain in weight is soon noticed. The patients are able to continue their work and coughing and expectoration diminish. In lupus the injection is made centrifugally near a focus. Scrofula is soon healed by the injections. Paratuberculous manifestations (Poncet's articular rheumatism, sciatica, mental depression) are soon relieved. The author vaccinated 335 children, some of them intramuscularly, for protective vaccination. For the past year no signs of scrofula or tuberculosis have appeared in any of the children. Immediately after the injection the von Pirquet reaction is positive, later it is negative. The injected material disappears in a short time from the system of a guineapig. One injection increases the life of a guineapig four times compared with a control.

Bronchial Ruptures in Thorax Compressions.—Schönberg reports three cases of transverse rupture of the main bronchus as the result of compression of the thorax by the passage of a heavy truck across the chest. In two cases the chest was perfectly intact, in the third there was a fracture of the fifth rib without injury to the pleura. Other injuries were one femur fracture and twice the tearing of the lung. The mechanism of the injury is as follows: The sagittal compression of the thorax causes the wedged shaped middle portion of the chest to be forced in between the two lungs until tearing of the bronchus results.

Aleudrin.—Top found that aleudrin is of equal value to the best modern hypnotics in 0.5 gramme tablets. A dose of one to 1.5 gramme induces sleep, lasting from four to seven hours.

Cerebral Symptoms in Tuberculous Patients.—Querner's post mortem examinations did not show the slightest anatomical cause for the severe meningeal symptoms, lasting three weeks before death, in a patient suffering from pulmonary tuberculosis. In the second case cerebral symptoms and paralysis lasted two weeks without a clue to the cause of these symptoms in the brain.

ZENTRALBLATT FÜR CHIRURGIE.

December 14, 1912.

The Heidelberg Steel Wire Plaster Cutter.—Walter Neumann describes an apparatus for the rapid and painless removal of a plaster of Paris dressing. A long steel wire is placed along the limb, then the dressing is applied, and finally the two ends of the wire are brought together over the bandage, so as to enclose it in a loop of wire. When it is desired to remove the dressing, each end of the loop is attached to an instrument which acts to

constrict the loop and so to make it cut through the plaster. This is done in a few seconds without causing the patient any trouble or pain.

December 21, 1912.

Injections of Pantopon Scopolamine for Operations under Local Anesthesia.—L. A. Diwawin proceeds in the following manner: The patient is given 0.5 medinal during the evening before operation, so as to secure him a good night's rest. In the morning, from one to two hours before operation, he receives an injection of a mixture of pantopon and scopolamine, the amount of each to be determined by his age and strength. The desired effect is usually obtained by from 0.02 to 0.03 of pantopon and from 0.0002 to 0.0003 of scopolamine in feeble men and women, or by 0.04 of pantopon and 0.0004 of scopolamine in strong men. It is only in exceptional cases that larger doses are needed, but careful individual doses are necessary. After about fifteen minutes the patient usually becomes somnolent, with a tired, bruised, weak feeling in all of his limbs. It is not a true sleep, as the patient rouses at once when anybody speaks to him or there is any excitement about him. An injection of a one per cent. solution of novocain suprarenin is made on the operating table, and a painless operation can then be performed. After the operation the patient usually sleeps for two or three hours, wakes, and then sleeps again till evening. The use of pantopon scopolamine is contraindicated in alcoholics, in old age, and in serious diseases of the heart and lungs.

FOLIA UROLOGICA.

July, 1912.

Perinephritis.—Illyes says that uric acid crystals eliminated by the capsule of the kidney can cause fibrous perinephritis which again causes kidney pain, and sometimes hematuria. In three cases after decapsulation the author has seen small uric acid crystals on the surface of the kidney and on the capsule.

August, 1912.

Ureteral Calculi.—Israel has operated in sixty-one cases of ureteral calculi. Independent of these cases there are, up to 1909, 172 cases in the literature. Ureteral calculi most frequently are formed in the kidney pelvis. Israel saw but two cases of ureteral calculi formed in the ureter. Sixty-four of his cases were in the pelvic portion of the ureter. Of these thirty-nine per cent. were palpable by rectum or vaginally. Only very large calculi can be felt abdominally. A ureteral catheter may force a small calculus back into the kidney pelvis, or go past the calculus, and enter the kidney pelvis without hindrance. Ureteral calculi give practically the same symptoms as kidney calculi. The radiograph is negative in 11.7 per cent. of cases in which a calculus is present. A bismuth coated catheter used in connection with radiography often helps in diagnosis. The radiograph should always include the two ureters. The operative indications for ureteral calculi are: Anuria, more than forty-eight hours; bilateral calculi; retention, with or without infection of the kidney; and acute pyelonephritis. In uncomplicated cases operation depends upon the size of the calculus; upon the persistence of the pain in a circumscribed area; and is indicated when the calculus

has no tendency to descend. For juxtavesical calculi in women one does a vaginal ureterotomy; in men they may be thrust back toward the kidney so as to make the incision and suture of the ureter easier. Often calculi can be worked back into the kidney pelvis and a pyelotomy performed. In fifty-three operations performed by Israel there were but two deaths, from myocarditis and cardiac paralysis. Twenty-five cases of uncomplicated urethrotomies resulted in no deaths.

KLINISCHE MONATSBLAETTER FÜR AUGENHEILKUNDE.

November, 1912.

Autointestinal Intoxication in the Pathogenesis of Eczematous Keratoconjunctivitis.—Gian Luigi Colombo lays great weight on indicanuria as an evidence of intestinal intoxication in patients suffering from this very common disease, and is inclined to think such intoxication is its cause. A paper by him on this subject in 1911 brought forth evidence that indicanuria was very common, even among those who gave no signs of intoxication. In this paper he shows indican to be present in considerable quantity in 82.6 per cent. of the cases he examined and reports four briefly in which recovery quickly followed treatment directed to the intestinal condition.¹

Radium Treatment of Vernal Conjunctivitis.—Otto Schnaudigel reports a case of this obstinate disease which was cured by radium. Five sittings were given in the spring and summer of 1910 to the left eye, one to the right. One sitting was of fifteen minutes' duration, the next two of twenty-five, including the one to the right eye; the last two of thirty. In 1911 the right eye was perfectly well, the left showed some traces, so two sittings more were given of twenty minutes each. Thirteen months later both eyes were well.

MONATSSCHRIFT FÜR KINDERHEILKUNDE.

November, 1912.

Early Stages of Poliomyelitis.—E. Müller calls attention to the fact that a thorough knowledge of the early symptoms of poliomyelitis is due chiefly to the studies of Medin and Wickman. The period of incubation lasts from one to ten days. During this period there are no marked disturbances. The early stage is divided into two parts, the preparalytic stage with fever, and the paralytic stage. In the preparalytic stage there may be symptoms referable to the gastrointestinal tract or to the meninges. There may also be symptoms referable to the respiratory tract such as coryza, angina, bronchitis, or pneumonia. The cardinal symptoms during this period are: 1. Hyperesthesia; 2. intense sweating; 3. lumbar puncture findings. The spinal fluid is usually under increased pressure. It is clear and contains no organisms. There is a moderate lymphocytosis and an increased amount of albumin. Müller calls attention to the abortive cases of poliomyelitis and says they are more common than the paralytic forms. He describes in passing the various forms

¹Although gastrointestinal troubles are often observed in this disease, and although regulation of the diet forms an important part of its treatment, yet it is commonly thought to be a local symptom of a general organic affection known as scrofulosis. Those who do not believe in the existence of scrofulosis have difficulty in explaining its nature. Incidentally, it is a disease of childhood and usually passes away about the age of puberty, yet the four patients mentioned by Colombo were aged twelve, thirteen, seventeen, and eighteen years respectively.—ED.

of paralysis encountered in poliomyelitis. The mortality varies from ten to fifteen per cent.

Stenosis of Bile Ducts.—K. Sugi reports the case of a three weeks old child that came under observation for the first time at two weeks of age on account of umbilical hemorrhage. During observation the infant showed no jaundice. The infant died from a hemorrhagic diathesis and showed at autopsy, beside many external and internal hemorrhages, a very icteric liver secondary to a stenosis of the ductus hepaticus and both its main branches. The stenosis was of an inflammatory nature. Lues was suspected, but not proved.

Sugar Splitting Ferments in Infants.—F. Lust examined the feces of infants with nutritional disturbances for the ferments lactase, maltase, and invertin (saccharase). Lactase and maltase were found in every case, but invertin was absent in ten out of thirty-four cases.

Proteid, Starch, and Fat Splitting Ferments in Infants.—F. Lust and H. Hahn examined the feces of infants as above for trypsin, erepsin, rennet, lipase, and diastase. Trypsin was found in every case but one. This patient had a severe case of atrophy and died two days later. Erepsin was found in every case. Rennet was present in every normal case, but was absent in a few cases with enteritis. Diastase was present in every case. Lipase was present in all normal cases and in chronic nutritional disturbances, but was absent in acute alimentary intoxication. The authors leave their conclusions for a future communication.

LYON MEDICAL.

December 8, 1912.

An Additional Stage in Enucleation of the Eyeball for Ocular Phlegmon.—Genet and Bussy report a case in which, during enucleation, an adhesion as large in cross section as a dime, and situated next to the optic nerve, was found between the sclerotic and Tenon's capsule, thus necessitating the use of the scissors before the eyeball could be freed. Some cicatricial tissue was also found behind the capsule, with a group of short ciliary vessels forming its axis. There was no perforation of the sclerotic at the point of adhesion, however, the sheath of the vessels having most likely been the route of infection or perhaps merely of the transmission of irritating fluids—from the interior of the eyeball. Although textbook authors refer to posterior perforation of the eyeball in panophthalmitis, Genet and Bussy have been unable to find any report of lesions of the sclera in a cross section passing through the point of perforation.

December 15, 1912.

Renal Radioscopy.—T. Nogier asserts that radioscopy of the kidneys is a simple and rapid method of examination which is well suited for clinical use. The patient should be examined in the standing position, a cylindrical diaphragm used to render the picture as sharp as possible, and the soft tissues compressed by means of an apparatus which the author describes.

PRESSE MÉDICALE.

December 7, 1912.

Hemiplegia after Scarlet Fever in a Puerperal Woman.—Issailovitch-Duscian reports such a case and calls attention to the fact that scarlatina, like puerperal infections, may give rise to hemi-

plegia, with or without aphasia; the prognosis in scarlatinal hemiplegia, however, is less serious than in the form due to puerperal infection.

December 11, 1912.

Rôle of Adrenal Insufficiency in Pernicious Vomiting of Pregnancy.—Emile Sergent and Camille Lian report six cases of previously refractory vomiting in pregnant women in which prompt relief was afforded by the administration of epinephrine or adrenal substance. Since all these patients had shown marked lassitude, low blood pressure, and the "white line" phenomenon, the authors believe impaired adrenal functional activity to have been an important factor in the hyperemesis. In one case severe lumboabdominal pain and extreme lassitude preceded the onset of vomiting by many hours. The secretory activity of the adrenal cortex, which has been shown in bitches to undergo hypertrophic changes during pregnancy, is one of the means of defense called upon by the organism to overcome the syncytial autointoxication, i. e., toxemia arising from the chorionic villi, present in the early pregnant state. Where this toxemia is unusually marked, the adrenals, normal before pregnancy, may become rapidly exhausted through overwork, and a morbid condition the expression of both toxemia and adrenal insufficiency result. The authors do not hold, however, that adrenal insufficiency is a factor in all cases of pernicious vomiting. The success obtained in a few instances with corpus luteum or thyroid preparations seems to indicate that these organs may also be factors in protecting the system against the toxemia. In applying the adrenal treatment the authors give either the dry extract of the whole suprarenal glands in the average dose of 0.3 gramme in cachets two or three times daily, or the hydrochloride of epinephrine, from twenty to thirty drops daily of the one to 1,000 solution. The former is to be preferred when it is retained. The authors conclude that abortion should not be induced in the pernicious vomiting of pregnancy before a trial of adrenal therapy has been made, except in the most urgent cases.

ANNALES DES MALADIES DE L'OREILLE, DU LARYNX, DU NEZ ET DU PHARYNX.

No. 9, 1912.

Local Analgesics.—Le Mée studies in the present article cocaine, stovaine, alypin, the eucaines (A and B), and tropococaine. He finds the belief that cocaine solutions can not be sterilized is unfounded, though it is less easily kept sterile than the solutions of the other drugs studied. In the nose he uses cocaine in crystals, in the liquefied form, or in solutions of from one to twenty per cent. strength. Stovaine from five to sixty per cent. (Dubar) gives good local analgesia, but is apt to give troublesome postoperative hemorrhage. Alypin is most used in twenty per cent. strength in the nose, with adrenalin added; this drug requires about one third longer to give analgesia than cocaine (say about fifteen minutes). Alypin has the same objection as stovaine, viz., hemorrhage during or after operation. Beta eucaine is considered equal in action to cocaine, both as regards intensity and duration, it is easily sterilized, but is a vasodilator. Tropococaine is said to be more durable but less intense than cocaine in its action within the nasal fossæ. Cocaine is the

most toxic of all these drugs, the others being held to be far safer. All these solutions are more effective if they are warmed to 40° or 45° C. before applying. In the pharynx and larynx, cocaine is much less apt to give toxic symptoms than in the nose. It is here used in five to ten per cent. solutions. Injections about the tonsils are to be of 0.5 to one per cent. strength. Stovaine gives an extremely disagreeable taste, but not the choking sensation of cocaine. Stovaine with equal parts of saline solution gives no shrinking of the parts or change in aspect, but the analgesia is less satisfactory than that of cocaine. Alypin may be used in the strengths of ten to twenty per cent. Generally speaking, it is considered inferior in action to cocaine. Beta eucaine has little effect in the larynx, even in twenty per cent. solution; but it is satisfactory in removal of adenoids, and no secondary hemorrhages are reported to follow its use. Tropicocaine is not used in the larynx because of the intense spasm it sets up. In the ear, cocaine alone is not effective if the drum membrane is intact. It is combined advantageously with anilin oil and alcohol (as in Gray's formula), or with crystals of phenol and menthol in equal parts (as in Bonain's solution) for analgesia preparatory to a paracentesis. Stovaine is useful in incising furuncles of the canal and in paracentesis, either alone or in combination with cocaine. Alypin lessens sensibility in the canal, on the drum, and in the tympanic cavity, as in cauterizing granulations, removing foreign bodies, and polypi. But Le Mée prefers the Bonain solution to alypin. In endoscopy the author cautions against using stronger solutions than five per cent. (cocaine) in the larynx (danger of toxic absorption), but finds ten or twenty per cent. safe in the esophagus as preparatory to instrumentation. Couzard, of Paris, uses a one to twenty-five powder of stovaine in order to lessen the sensation of later applying an alcoholic solution of twenty-five per cent. strength. Alypin is used in bronchial and tracheal examinations in twenty per cent. solution, combined with adrenalin, but there is danger of bleeding. In the esophagus more adrenalin is added, to constrict the mucosa and thus facilitate the introduction of the instrument. Here adrenalin offers no dangers, and may be used up to ten or fifteen drops (one to 1,000) at one séance. The eucaines and tropacocaine are not of advantage in endoscopy. The dangers of the drugs studied by Le Mée, are, for cocaine, the toxic symptoms it often gives; and, for the others, the vasodilatation given (except tropacocaine, which is considered as indifferent in its vasomotor action), making bleeding more troublesome during the operation, and postoperative bleeding more likely to occur, especially if adrenalin is combined with the preparation used.

ARCHIVES DES SCIENCES BIOLOGIQUES, ST. PETERSBURG.
No. 3, 1912.

Streptococcus in Blood of Scarlet Fever Patients.—V. N. Klimenko examined the blood of 523 children suffering from scarlatina for streptococci, and concludes that the organism is found only in 2.1 per cent. of all cases. The streptococcus never enters the blood in the early stages of the disease; a special clinical picture, characterized by

septicopyemic phenomena, appears when the blood is invaded by it, though even then the prognosis is not rendered absolutely hopeless. There is no correspondence between the entrance of the organism into the blood and the appearance of synovitis, nephritis, or endocarditis. In cases of the fulminating type, no streptococci are to be found in the blood, either before or after death. There is undoubtedly a relationship, however, between ulcerative processes in scarlatina and the entrance of the streptococcus into the bloodstream. The organism concerned, wherever it is found in scarlatina, seems to be the streptococcus of erysipelas or long streptococcus.

Negri Bodies in Rabies.—R. Pirone points out that statistics hitherto advanced concerning the frequency with which Negri bodies are found in rabid animals have been faulty because the material upon which they were based included animals killed soon after the onset of rabies as well as those which had passed through the entire course of the disease and died therefrom. Various writers have thus been led to conclude that the Negri bodies are absent in 10.6, 11.9, and even 13.5 per cent. of rabid animals, whereas Pirone found in a series of 667 animals, all of which died from the disease, that these bodies were absent only in eight, or 1.2 per cent. The value of a negative finding in animals dead of rabies is consequently much greater than has hitherto been thought.

ROUSSKY VRATCH.

October 27, 1912.

On the Influence of Mushrooms on the Course of Nephritis.—A. Ph. Kakovsky observed that edible mushrooms have a decidedly deleterious effect in cases of nephritis, aggravating the condition of the kidneys.

November 3, 1912.

Tolerance of the Isolated Heart to Morphine and Nicotine.—V. I. Berezin demonstrated experimentally that repeated application of morphine or nicotine to the heart establishes a tolerance to the extent that the heart no longer responds to a repetition of the dose. This tolerance, however, disappears during a period of rest, so that a renewed application causes marked cardiac disturbances.

Diagnostic Significance of Painful Points on the Spine and Skin in Gastric Ulcer.—M. I. Barantshik demonstrated clinically that gastric ulcer gives rise to characteristic hyperalgesias of the bodies and processes of three to seven dorsal vertebræ. The diagnostic significance of the hyperesthesia of the skin areas, supplied by the seventh, eighth, and ninth spinal segments, the so called seventh, eighth, and ninth dorsal belts, is not very great.

The Comparative Action of Scarlet Red and Amidoazotoluol on Granulating Wounds.—N. A. Dobrovolskaja observed that in clean granulating wounds the application of ointments containing scarlet red or amidoazotoluol gives no better results than a dry aseptic dressing or a bland salve.

November 10, 1912.

The Engel-Turnau Reaction in Nursing Infants.—S. E. Ostrovsky found a positive Engel-

Turnau reaction in the urine of 96.2 per cent. of breast fed infants, while in 96.7 per cent. of bottle fed infants the reaction was negative. By means of this test he was also able to detect mixed feeding.

Action of Preparations of Iodine on the Blood.

—M. J. Barantshik determined experimentally that iodides produce marked changes in the physical and chemical properties of the blood. Thus, the viscosity and specific gravity are increased; the leucocytes, particularly the polymorphonuclears, are also increased in number. The action of iodides in arteriosclerosis he explains by assuming changes on the osmotic pressure in the vessels and surrounding tissues.

Generalized Gonococcic Infection Treated with Vaccine and Antigonicocccic Serum.—B. A. Volter reports a case of severe generalized gonococcic infection in which the administration of antigonicocccic serum proved of marked benefit.

BRITISH MEDICAL JOURNAL.

December 21, 1912.

Some Manifestations of a Healthy Heart in the Young Frequently Taken as Indications for Treatment.—James Mackenzie dwells on the great defect in our knowledge of the significance and meaning of cardiac phenomena, particularly the harm which may accrue from misinterpretation. Of the four types of cardiac irregularity which are commonly encountered, two are usually of serious omen, while the other two are usually of no moment at all. Pulsus alternans occurs only when there is great exhaustion of the heart muscle; when this is due to some temporary cause, such as a short febrile condition, it may be of but relatively slight significance, but usually it indicates serious impairment. The irregularity of auricular fibrillation is the best known and is usually of grave import. Irregularity due to the presence of extrasystole is common in adult life, and those who show this condition very seldom have any impairment of general health and never suffer from heart failure. While an opinion of gravity should never be based upon this condition, it may be present in those who do suffer from some form of serious heart failure, but this must be determined by the presence of other signs. When it is the only abnormal sign it may be ignored. The youthful type of irregularity is characterized by a variation in the length of the diastolic period. This will be found often to be synchronous with one or the other of the respiratory phases; usually with expiration the slow beats are found. This form of irregularity has a tendency to come and go without any perceptible reason. It is so common in the young that Mackenzie thinks that every healthy person probably shows it at one time or another. It is of absolutely no serious significance and it must be so recognized, for much unnecessary harm has been done through the belief that any heart irregularity is an indication of serious heart disease. Of functional murmurs in the young, that is, murmurs in the absence of evidence of muscle affection. Mackenzie says that they are "signs neither of disease nor of impairment." Both irregularities and murmurs may be present in the young and be in no way incompati-

ble with the presence of an absolutely normal and healthy heart. The sole trustworthy guide in the prognosis and the judgment of the significance of disease of the heart is the state of muscle impairment, or its absence. Increase in the size of the heart and the presence of murmurs may be signs of impairment of the muscle, but are not necessarily so and must not be taken alone. The one most valuable means of discovering muscle impairment is by a study of the functional efficiency of the heart.

Observations on the Acoustic Phenomena in Mitral Stenosis.—Thomas Lewis offers a preliminary communication based upon the results of simultaneous records taken by a microphone and a string galvanometer. The time relation of the first and second sounds in mitral stenosis is practically the same as in normal hearts. The sounds are usually much more intense, though similar in duration to those of the normal heart. In hearts beating regularly with normal sequence of contraction, the shortest diastolic murmurs of mitral stenosis precede the first sound, and consequently precede the initial rise of intraventricular pressure. In general the presystolic or diastolic murmur is not crescendo; the crescendo is an effect of the proximity of the loud first sound. The murmur usually occupies the whole or greater part of diastole. In the presence of auricular fibrillation an isolated presystolic murmur does not occur, the fixed time relation of the murmur is to the early phases of diastole. The murmur extends over a variable portion of the diastole according to the variation in the duration of the latter. In long diastoles and in slow acting hearts there is an appreciable silence between the murmur and the first sound, in the shortest diastole the murmur may occupy the entire period. In heart block the position of the diastolic murmur is largely controlled by the position of the auricular contraction. Lewis concludes that in mitral stenosis the diastolic murmurs are due to the rapid outflow of blood through the stenosed mitral orifice. Murmurs occupy those periods of diastole during which the velocity of outflow reaches a certain grade. When the auricle contracts at the normal time and the heart beats slowly, the velocity tends to be greatest in presystole, otherwise it is usually greatest in early diastole, and these are the periods at which the murmurs are most commonly audible.

Regional Anesthesia.—Felix Rood uses the following solution for paraneural anesthesia: Novocain, two grammes; sodium chloride, 0.5 gramme; and distilled water to 100 c. c. To this is added, immediately before use, adrenalin in the proportion of five drops of a one to 10,000 solution to each twenty c. c. of solution. The novocain solution is sterilized by boiling. The paper gives guides and landmarks for the injection of the several nerves of the extremities and shows the areas of anesthesia produced in each case, by means of diagrams. The application of the method, which has greatly extended its field of usefulness, is the injection of the intercostal nerves posterior to their lateral cutaneous branches. This is accomplished by injection just in front of the angle of the rib. The needle is introduced through the skin, while the patient lies on his face with the arm

raised, at a point a little below the level of the desired rib. It is passed obliquely upward until it touches the lower border of the rib; then it is withdrawn a fraction of an inch and the point depressed a little, when it is again pushed forward. When the point just misses the lower border of the rib the needle is pushed on for about a quarter of an inch, well into the subcostal groove, and the injection made. This anesthetizes the entire thickness of the chest wall, from the mid line in front to within a few inches of the mid line behind. It offers a very valuable means of performing almost any operation on the thorax or the contained organs and obviates the dangers of general anesthesia in these cases, thus materially ameliorating the prognosis.

High Frequency Currents in Trigeminal Neuralgia.—W. F. Sommerville reports the successful result of the use of these currents in a case of very resistant trigeminal neuralgia which had not been improved by any other form of treatment.

December 28, 1912.

Preoperative Diagnosis of Appendicitis.—William Ewart describes a localized patch of dullness over the posterior superior spine of each ilium, which is to be elicited by careful percussion by means of Sanson's pleximeter. Alteration in the character, or extent, or both, of the right patch forms the basis for his new method for the more certain diagnosis of appendicitis. The most common indication is an increased area of dullness, though, at times, a portion of the normal patch may be replaced by tympany or hyperresonance. Diagrams illustrate many of the common findings. The examination is simple and is to be carried out preferably with the patient in a sitting position, though it is feasible to do with the patient in the left lateral prone decubitus. An accurate tracing should be made of the two areas of dullness found, as this serves as a later control of the success of operative treatment. The advantages asserted for the method are numerous. Previous to its use there was only a small group of cases in which an accurate preoperative diagnosis could be made with any degree of certainty, namely, the acute cases with definite symptoms. By this new method a large number of suspected cases, and many unsuspected cases diagnosed as other vague conditions, can be definitely shown to be posterior or central appendicitis, or latent appendicular abscess. In just these cases the older abdominal method of examination fails and the symptoms are alone insufficient to localize the trouble. In a long series of cases of all grades of severity down to those without any definite signs the new method has proved far the most successful. It is far more accurate as a means of providing a localizing diagnosis, and detects retrocecal abscess where it has been overlooked. The method provides a normal standard, for the left patch is the control in each individual. It provides a means of determining the total absence of appendicular lesion in routine examinations for general health. It is the only means by which the thoroughness and successfulness of treatment can be determined.

Foreign Body in the Abdominal Cavity.—L. B. Green reports a remarkable instance of the introduction of a bone knitting needle into the abdominal

cavity through the genital tract of a woman in an attempt to cause abortion. The body was removed eleven days later and no signs whatever of inflammatory reaction or infection were found in the abdomen.

LANCET.

December 21, 1912.

Pharmacotherapy of Pneumococcus Infections (Concluded).—A. E. Wright and his collaborators carried their experiments to man and found that ethylhydrocupreinhydrochloride was not poisonous for the pneumococcus and at the same time nonpoisonous for the tissues of the patient. In the human organism the drug is opticoneurotropic. Eight cases out of a total of thirty-six, in the care of different observers, showed some ocular disturbance after doses of 0.5 to two grammes of the drug. In some of these the condition went on to definite amblyopia. Together with this toxic action there is a lack of any very definite beneficial action to the host through destruction of the pneumococci; the drug may be classed as inefficacious or doubtfully efficacious at best. The drug does not increase the opsonic power of the human blood and it exerts no effect upon leucocytes until concentrations are reached which are at least twenty times stronger than would correspond to the medicinal doses used. One of the most obvious explanations for the beneficial action of the drug on pneumococcus infections in mice and the absence of a similar effect in man lies in the difference in the nature of the infection in the two animals. In mice the infection is a septicemia and the drug comes into direct contact with the organism in the blood stream. In man the main seat of the bacterial invasion is in the lungs where the tissue spaces are so filled with coagulated lymph that the drug can reach the bacteria only in very small amounts and very great dilution.

Treatment of Pott's Disease.—T. H. Openshaw and P. B. Roth advocate the prolonged use of a double Thomas hip splint with extensions for the head and feet. Two principles should guide the treatment of all of these cases, namely, put the diseased parts at absolute rest and do not interfere surgically until forced to do so. The advantages of the Thomas splint over all other methods in common use may be enumerated thus: 1. It will fit for years owing to the adjustable nature of the head and foot extensions; 2, the diseased portion of the spine and the groins and abdomen can always be inspected without removal of the splint; 3, dressings can be applied if there is a sinus present; 4, the child can be washed daily, and prevented from becoming verminous; 5, the splint does not cause sores; 6, it does not interfere with growth or development of the chest. Its continued use for many months should be followed by the application of a poroplastic jacket to allow the child to get about after the disease has become nearly healed. The results of this method of treatment are very gratifying and the treatment is very conveniently carried out in outpatient practice, a further great advantage.

Secretory Activity of the Stomach in Chronic Appendicitis with Gastric Symptoms.—C. Singer concludes that in cases in which chronic appendi-

citis is associated with gastric symptoms a gastric or duodenal ulcer may or may not be present, but that in all cases the gastric juice is found to be abnormal on analysis. The abnormalities may consist of increased or diminished secretion of both chloride and pepsin, or the presence of a proteolytic ferment, and of the elevation of the nitrogen factor. Such abnormalities can be explained best as being due to the action of toxic substances on both the stomach and appendix. Removal of the appendix does not always relieve or improve the symptoms.

Vaccine Treatment of Hay Fever.—A. G. H. Lovell treated five patients with a standardized vaccine made from pollen toxine. All patients were improved, but none was cured.

December 28, 1912.

Complete Removal of Pleural Effusions.—H. M. Davies shows the necessary insufficiencies and dangers of the usual methods of simple aspiration of pleural fluid. He employs the following means of securing complete evacuation of the fluid without the dangers or discomforts previously encountered in the partial removal: After inducing local anesthesia of the chest wall in two places he introduces a cannula into the eighth intercostal space in the mid axilla and a needle into the fifth space in the same region. The lower is connected with the aspiration bottle and the other with the apparatus usually employed for the induction of a nitrogen pneumothorax. A manometer is in the upper circuit, and oxygen is employed as the gas instead of nitrogen. Fluid is then aspirated from the chest until the patient coughs or experiences the least pain. The aspiration is then stopped and fifty to 100 c. c. of oxygen is run in slowly. This causes the pain and cough to disappear at once and the aspiration may be continued until there is another appearance of the symptoms, when the process is repeated. This is continued until no more fluid can be obtained. This procedure causes the patient a minimum of discomfort with the greatest amount of benefit and permit of the immediate use of the x ray for diagnostic purposes, an advantage not available when only a part of the fluid is withdrawn. The method has another great advantage in the fairly rapid absorption of the oxygen introduced, for this reduces the endothoracic pressure gradually and exerts a decided beneficial action upon a lung which otherwise would not expand well. In many cases this traction has caused the breaking up of very considerable adhesions without any discomfort to the patient.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 2, 1913.

Six Years' Treatment of Pulmonary Tuberculosis by the Class Method.—Nathaniel K. Wood asserts that the scope of the class work, though small, is larger than appears at first sight, because its influence extends beyond the individual patient and includes his entire family. It is not too special to be practical; one case in six of an ordinary clinic is suitable for this treatment; ninety per cent. of the cases treated were advanced. The expense is given as \$5.95 for each patient a month. At the end of six years 72.5 per cent. of the patients are living. The advantages claimed are: It furnishes

a means by which patients can be kept under observation for a long time; it cultivates in the patients a spirit of faithfulness toward the treatment after discharge from the class, as shown by their continuance of outdoor sleeping and their marked after improvement; a large proportion, fifty-seven per cent., have returned to useful occupations, and that some have been able to have their processes arrested without losing a day's work; the death rate has been 23.5 per cent. in six years, of which fifty per cent. or more occurred among those in the class less than three months; it affords relief to persons who would otherwise not be reached, such as the far advanced, those without civic settlement, children, and those who under no conditions will leave their homes. For these reasons Wood maintains that this method of treatment is entitled to definite recognition.

Rôle of Ptosis in Gynecology.—Robert M. Green says that the rôle of ptosis in gynecology is primarily in the production of pelvic displacements, secondarily in association with and as a result of intrinsic disease of the pelvic viscera. In the one case it is a cause, in the other a symptom. Primary ptosis may be congenital, in subjects of a depraved general physique, or acquired, either by static errors or as a result of the fatigue and trauma incident to life. In any event it should be considered as a possible cause for gynecological symptoms, especially backache, and the proper measures adopted for its cure or relief.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 4, 1913.

Pancreatic Lymphangitis and Chronic Pancreatitis.—John B. Deaver remarks that pancreatitis must be studied with an open mind in regard to its etiology, particularly in its relation to chronic inflammatory diseases of the alimentary tract that have their ending in retroperitoneal lymphangitis; that although in the early stages the results of treatment are promising, when the stage of interstitial deposit of fibrous tissue is reached, the case is hopeless. The most promising lead for treatment is in the means already devised for the treatment of chronic inflammation in the organs with which pancreatitis is commonly associated and on which it apparently depends. Finally, he is of the opinion that pancreatitis is not rare but common, and that its presence should be suspected in all cases of obscure upper abdominal indigestion and like other chronic inflammatory abdominal lesions, if it is not amenable to medical treatment within a reasonable time, surgical intervention should follow.

Unusual Exposure to Light, Followed by Seborrheic Keratosis.—Douglass W. Montgomery observes that while seborrheic keratosis is a common cutaneous disease occurring frequently in elderly people, especially those having a seborrheic skin, light, especially its actinic rays, must be considered the usual exciting cause. While there is no direct evidence of this view, several phenomena seem to confirm it: A small pigmented spot is often the beginning of a patch of seborrheic keratosis, and the action of light favors the formation of pigment. These seborrheic patches are most com-

mon and profuse on persons exposed to light, appearing almost exclusively on the exposed surfaces of the face, ears, neck, and back of the hands, the lesions being analogous to those of xeroderma pigmentosum, the exciting cause of which is known to be light. Finally, chronic dermatitis from prolonged exposure to x rays, which are peculiarly actinic, exhibits the same symptom complex as xeroderma and seborrheic keratosis, and eventuates, as they do, in epithelioma.

Etiology of Unilateral Renal Hematuria.—Alexander Randall calls attention to the rôle played by congestion of one kidney, and the relative importance of this congestion in the etiology of that symptom, unilateral hematuria. His conclusion is that nephritis with its concomitant congestion is the leading feature in a majority of the cases. In a second group the bleeding is from varicosities in the pelvis, secondary to congestion resulting from some extrinsic condition. In a third group the hemorrhage arises either from the rupture of a vessel or diapedesis of red bloodvessels, again secondary to congestion caused by some extrinsic condition. The actual etiological factor in any case causing the hematuria is a renal congestion, which may be certainly and successfully relieved by a nephrotomy.

Influence of the Operation of Resection of the Kidney on the Function of the Organ.—John H. Cunningham's experimental work on rabbits, which forms the basis of the paper, was suggested by an operation on a woman with but a single kidney, which contained calculi, removed later by operation. The rabbit urinates normally every three hours, but after a left sided nephrectomy, urine was not voided for from ten to eighteen hours, except in one instance, when a blue urine was voided between four and six hours. After resecting a portion of the remaining kidney, opening into the renal pelvis and closing the wound entirely, the secretion of the urine was much delayed (from seventeen to forty-four hours—usually after thirty hours. After resecting a portion of the kidney and draining with a rubber tube through the loin, urine was secreted in every animal before eight hours, and in most cases between six and seven hours. After resection of a portion of the kidney and draining with gauze through the loin, urine was secreted in six or seven hours, except in one which showed a blue fluid between four and five hours. The writer concludes that following the operation of kidney resection and entire closure of the wound, a temporary arrest of the kidney function occurs; that performing the same operation and draining the kidney pelvis, not entirely closing the wound, causes a less degree of suppression; when the kidney pelvis is drained by a rubber tube the drainage through the loin is freer than when gauze is used.

Diagnosis and Indications for Operation in Early Hydronephrosis.—Hugh Cabot shows that the symptoms are a fallacious guide to the diagnosis of this condition, and the general physical examination adds equally little of value. Routine uranalysis is practically valueless, for any suggestions thus obtained would likely point to other conditions than early hydronephrosis. The cystoscope

and ureter catheter are necessary aids. Alone the cystoscope is of little value, and catheterization of the ureter, with distention of the renal pelvis, gives some help, but only when considerable dilatation has occurred will it allow of a positive diagnosis, and would fail entirely to reveal the cases with an irritable and therefore apparently contracted pelvis. The x ray, in and of itself, is of negative value only, excluding renal calculus and aiding in the exclusion of renal tuberculosis, but it cannot reveal the position or outline of the renal pelvis. The writer advises the injection of the renal pelvis with silver salts (which cast a shadow) through the ureter catheter when the exact size, position, and relation of the renal pelvis may be studied by the x ray. This he calls pyelography, and pronounces it the main stay of diagnosis.

Function of the Ureterovesical Valve.—John W. Draper and William F. Braasch have made an experimental study of the feasibility of ureteral meatotomy in human beings and conclude that there is little or no danger in human beings from the operation of meatotomy through the operative cystoscope, either from immediate hemorrhage or sepsis, or from late results from renal injury, provided the operator is experienced. The protection from reflux is effected quite as much by physiological ureteral function as by the check valve action at the meatus; together they constitute the "factor of safety." The ureter alone, almost always, prevented reflux, even if the ureterovesical valve had been destroyed, the ureteric function was not impaired after section of the valve. The writers conclude that the foregoing data confirm the opinion already offered that renal infections are seldom if ever ascending, but are usually hematogenous.

MEDICAL RECORD.

January 4, 1913.

Some Experiences with Antityphoid Inoculation.—John W. Brannan vaccinated some 200 hospital nurses, also about fifty members of the house staffs of the various hospitals with which he was connected, against typhoid fever. The inoculations were all given at the usual site of vaccination against smallpox, on the outer surface of the left upper arm at the insertion of the deltoid muscle, the skin being sterilized with the tincture of iodine and the injections being made under the skin, and not into the muscle. Very few severe reactions were noticed, those being more marked among the men. Only three nurses asked relief from duty for a day, whereas several of the internes were laid up two days at a time with temperatures ranging as high as 102° F., with rapid pulse, nausea, vomiting, severe headache, and pain in the back. One interne had a temperature of 103° F. after each of two doses (0.5 c. c., containing 500 million dead bacilli). He also had a "splitting" headache for thirty-six hours, great prostration and abdominal pain. Concerning the alleged occasional lighting up of latent diseases, such as arthritis, the writer inquired particularly, but failed to learn of any instance of this. He found, however, that the reaction was the same in the cases that had had typhoid fever as among those who gave no history of the disease. While undergoing inoculation many of the nurses were in

close attendance on cases of typhoid, and Wright's negative phase gave rise to the fear that an increased susceptibility to the disease might be excited. As nothing happened, it seems to prove the contention of Richardson and Spooner, that the negative phase of immunity said to follow bacterial inoculation has no basis in fact. The duration of immunity after inoculation is believed to be two or three years. In the United States army the men are revaccinated against both smallpox and typhoid at the beginning of each three year period of enlistment.

Conservative Treatment of Tuberculous Glands of the Neck, Based upon Their Pathology.—John S. Brown's experiments for several years along these lines have led him to believe that scrofula is a tuberculosis of the patient, not only of the glands, which would indicate prophylactic and therapeutic hygiene as well as local treatment. As complete extirpation of the disease is impossible, and as Nature tends to cure, if given opportunity, judgment is a necessary factor in the matter of treatment. Since the glands exercise an important protective function they should not be carelessly sacrificed by the surgeon, who should be rather as conservative as possible when dealing with them, the removal of the caseous masses by a proper technic being all the local surgery needed in a great majority of the cases. The writer attaches considerable value to the action of the enzymes of yeast.

LANCET-CLINIC.

November 2, 1912.

Median Harelip.—Rausohoff reminds us that that the term "harelip," applied to the usual congenital fissure of the upper lip, is a misnomer, since the hare's lip is cleft in a Y shaped manner, the upright portion of the fissure being in the middle line with a bifurcation extending into each nostril. Viewed from the standpoint of development median harelip is totally distinct from the common variety. The latter is the result of a failure of fusion between the lateral maxillary and the frontonasal processes, while the median harelip results from a failure of union between the lateral tubercles of the frontonasal process, which is placed on each side of the middle line. His teaches that the central part of the upper lip is formed from the lower portion of the frontonasal process by the fusion in the midline of the two buds of globular shape. In point of time this is the last portion of the process to develop, and the fusion does not occur until the former has quite descended to the level of the lateral portions of the future lip. The writer reports a case of this rare condition.

November 16 and 23, 1912.

The Buried Animal Suture.—Marcy, in a scholarly manner, traces the history of sutures from the preaseptic period to the present time, giving incidentally a description of the rise and progress of antiseptic surgery. An important point, original with Lord Lister, which affects and at the same time explains the value of buried sutures, is the active cell proliferation in the deeper layer of the skin. In using the buried suture, the watchword is coaptation and not constriction. Subcutaneous su-

turing is not easy. The suture should be sufficiently fine and not chromicized, that its absorption may be assured before the normal skin growth brings it to the surface. The suture material itself is not exposed to invading bacteria. The very deep layers of skin only must be penetrated, and the stitches must be taken from side to side so that each stitch enters exactly opposite the emergence of the preceding one. Gentle traction brings the skin edges into even coaptation (the continuous suture is insisted upon by the writer), the last suture is fixed with a half knot, and the needle emerges at some distance from the end of the incision. The wound being carefully dried and sealed with iodoform colloid, the ends of the suture are drawn on, cut short, and allowed to retract beneath the skin. In healthy structures no drainage is permitted. The writer prefers kangaroo tendon on account of its great strength, ease of preparation, and uniformly good results. In deep operations like structures, as far as possible, should be coapted: fascia to fascia, muscle to muscle.

November 23 and 30, 1912.

Diagnosis and Treatment of Hysteria.—Hoppe calls our attention to the fact that the concept of the condition formerly known as hysteria has changed. For ages the all embracing diagnosis of hysteria was born of ignorance and fostered by our inadequate and inaccurate observations, and included many organic and functional diseases which we have learned to classify better under other more rational headings. The field of hysteria has become more defined, and there is, moreover, a relative and actual diminution in the prevalence of this disease. The enormous expansion of hysteria in bygone days was favored because organic diseases of the nervous system were mistaken for hysteria, deception of all kinds was unrecognized, simulation posed as hysteria, and finally certain functional nervous states, which we have learned to distinguish from one another and from hysteria, have been differentiated from the latter. Hysteria has actually and relatively decreased because of our greater and more accurate knowledge of disease based upon pathological findings (experimental and clinical) and upon accurate and scientific methods of diagnosis. As to the diagnosis of this disorder, the writer presents the views of the authorities from Charcot down to Babinski, Freud, Breuer, and Oppenheim, the physiological theories of Sollier and of Binswanger, and the vasomotor hypothesis of Savill, and concludes that the diagnosis must be made by exclusion after a careful mental and physical examination, and searching inquiry as to family history and antecedents. As to treatment, prophylaxis should be both general and special, the former resolving itself into eugenics, and the latter concerning those who are close to persons who are especially susceptible to suggestion. Psychotherapy and mental catharsis must precede reeducation. Success in treatment will demand daily interviews with the physician, who must himself be safe and sane, with a cheerful personality, a ready wit, a broad interest in all affairs, conversational ability, and above all an all absorbing interest in the case in hand.

BULLETIN OF JOHNS HOPKINS HOSPITAL.

November, 1912.

Aid to Diagnosis of Sinus Thrombosis of Otic Origin.—S. J. Crowe ascertained by examination of fifty normal individuals that no appreciable stasis is visible in the retinal or supraorbital veins when one internal jugular is compressed with the finger; that simultaneous pressure on both internal jugulars causes marked dilatation of the fundal veins and of the anastomotic vessels connecting the endocranial and exocranial venous circulations—most clearly observable in the supraorbital and ophthalmic veins—and that when the pressure is suddenly released on one side only the engorged veins of the anastomotic system and fundi will immediately empty. If the results obtained upon practising the three steps of this test in any individual case differ markedly from those given, there is either an anomaly of the endocranial venous circulation or some pathological condition which is obstructing the outflow of blood from the brain. In thrombosis of the lateral sinus there is clear evidence of stasis upon compression of the internal jugular of the opposite side. When it is possible, as in the author's cases, to examine an otitic patient before the onset of complications and find that both jugulars are patent, and later, in association with fever, to find that the blood is not passing down one side of the neck as freely as down the other, the sign may be taken as positive evidence of a sinus thrombosis.

Chloroform Poisoning.—R. E. Mosiman and G. H. Whipple found that prolonged chloroform anesthesia produces no liver necrosis in the pigeon, frog, and terrapin. The liver cells of these animals, in contrast to those of mammals, have a peculiar power of resistance to the poisonous action of the drug which affects particularly the cell nucleus. Fetuses and young pups show a similar but less striking resistance on the part of the liver cells. In both instances it is conceivable that this is due to the presence of numbers of nucleated cells in intimate association with the liver cell columns.

Effect of Scarlet Red on Defects in Gastric Mucous Membrane.—J. S. Davis and C. D. Deming fed dogs and rabbits with a one per cent. solution of scarlet red in olive oil or with dry, powdered dyestuff, administered in capsules. Artificial gastric ulcers were made, and the rate of healing in the animal fed with scarlet red compared with that in controls. The results did not make it possible to state whether the agent has or has not a definite stimulating action on the gastric epithelium. The oily solution did, however, cause a more rapid and marked epithelial growth than in control experiments in which oil alone was given. The less favorable results with the dry powder may have been due to the fact that the material was not continuously in contact with the denuded area. The dyestuff was found to be nontoxic, and the authors believe it worthy of a thoroughly clinical trial.

INTERSTATE MEDICAL JOURNAL.

November, 1912.

The Malaria Problem, with Special Reference to Education and Diagnosis.—T. W. Jackson in-

sists that education is the great prerequisite to success in antimalarial campaigns, and must begin within the ranks of our profession. Two known factors are necessary in propagating malaria; the anopheles mosquito and the plasmodium of malaria, one outside the human body, the other in the circulating blood. Thus two avenues of attack are present. We must destroy all the malarial parasites in the blood to make them noninfective to mosquitoes, by applying adequate treatment long enough to insure actual rather than symptomatic cures. The writer reports the case of a patient suffering with estivoautumnal (malignant tertian) malaria, his blood loaded with ring forms and crescents, who had been under treatment for typhoid fever for three weeks, and would probably have died, but for the corrected diagnosis made clear by the use of the microscope. More frequently the reverse mistake is made, though both are inexcusable with the means of diagnosis at our command. Though the microscopic diagnosis calls for special skill, intelligence, and practice, there should be no community without some medical man who can recognize the malarial parasites and make differential blood counts. The writer suggests that search should not be made immediately after or at the height of a paroxysm, and quinine must be withheld prior to examination. In the light of our knowledge of its parasitic causes and its insect and human carrier, we should be unwilling to get along without microscopic diagnosis or to cease treatment until the parasites have permanently disappeared.

The Treatment of Hemorrhagic Conditions with Normal Human Blood Serum.—L. A. Levison concludes that the term "hemorrhagic diseases of childhood" includes a number of conditions and diseases, in which hemorrhage is the dominating feature, which have not been accurately classified because we are not fully informed as to their etiology and pathology. He holds that there are probably a number of bacterial organisms, any of which may produce this hemorrhagic condition in childhood. The chemistry and mechanism of blood coagulation is not entirely known. Calcium, gelatin, adrenalin, and styptics have not proved satisfactory as hemostatics, nor has the use of animal serum other than human been successful. Human serum is nontoxic and should be invariably used in all hemorrhages of childhood, in liberal amounts, and continued for a short time after the cessation of the hemorrhages.

Hypotension; Its Clinical Significance.—F. A. Faught notes that nearly all our attention has been directed to those diseases accompanied by hypertension, although low blood pressure often forms an important part of the symptom complex of a number of pathological conditions, such as wasting diseases, acute infections, toxemias, etc. The writer places the low limit of normal blood pressure in man at 105 mm., and in woman at 95 mm. The lowest blood pressure in an adult compatible with life is from forty to forty-five mm., and this occurred with subnormal temperature and unconsciousness. Several varieties of hypotension are noted. *Terminal hypotension*, the abnormal lowering of tension which indicates the approach of death; *essential hypotension*, cases that seem to

have a constitutionally low blood pressure; *primary* or *true hypotension*, allied to the preceding but produced by some assignable cause; *relative hypotension*, where actual pressure, while still above normal, has fallen from a former pathological high level to such a degree that consequent symptoms have developed. The direct effects of a falling blood pressure are the accumulation of an abnormal amount of blood in the veins, and a lowering of the current in the arteries, which interfere with nutritive and secretory processes depending on it, the most dangerous being upon the heart where the complete loss of vasomotor tone leads to death.

JOURNAL OF BIOLOGICAL CHEMISTRY.

November, 1912.

Formation of Glycocoll in Body.—A. A. Epstein and Bookman report experiments which indicate that much of the glycocoll liberated upon feeding benzoic acid is the result of a synthetic process in the body.

Influence of Aminoacids upon Metabolism.—G. Lusk and J. A. Riche conclude that the increase in metabolism which occurs after ingestion of meat is due, not to the intensity of the intermediary processes of protein metabolism itself, as maintained by Rubner, but to the mass action of aminoacids acting as stimuli upon the cellular protoplasm. The increase in heat production occurring upon administration of meat to dogs was greater in the second and third succeeding hours than could be accounted for by the extra protein metabolism, as reflected in the urinary nitrogen, at the time.

Influence of Mixtures of Foodstuffs upon Metabolism.—Lusk and Riche describe the following forms of metabolism as occurring in the quiet or sleeping dog excluded from thermal influences: 1. A basal metabolism, when the cells are nourished by a blood stream which does not receive food from the intestinal tract, but the composition of which is regulated by the organs of the body; 2, a metabolism due to plethora, induced by an increase of carbohydrate or fat metabolites in the blood on account of absorption from the intestine; and, 3, a metabolism due to the stimulus of aminoacids. The last two forms of metabolism cannot be added to each other, *i. e.*, the level of cellular oxidation induced by plethora is not further heightened by the stimulus of aminoacids unless the latter alone would accomplish such an increase in activity.

Synthesis of Lecithin.—McCollum, Halpin, and Drescher state that up to the time of their experiments, no great production of lecithins and other phosphorus containing lipoids had been shown to result from the synthetic activity of the animal cell. Upon feeding hens fatfree rations they found that the egg production remained not far from normal. Analysis of these eggs showed that a large amount of lecithin and cephalin must have been synthesized.

Feeding on Single Proteins.—T. B. Osborne and L. B. Mendel found in experiments on white rats that when these animals were fed with mixtures of isolated and purified proteins, carbohydrates, and fats, together with inorganic matter in the form of crystallized salts, every animal sooner

or later declined, as a rule suddenly, with strong evidence that death would soon have ensued. The elements essential for prolonged maintenance were found to be present, however, in milk from which the fat and protein had been removed. In every case, administration of this milk resulted in immediate recovery of the depleted animal. On the other hand, it was found possible to maintain rats for periods equal to practically their entire adult lives on foods containing only a single purified protein, provided the "proteinfree" milk was also supplied. This indicates that the possibility of a transmutation or synthesis of the aminoacids constituting proteins in the organism has been hitherto greatly underestimated, and that monotony of diet is not necessarily a troublesome factor or one of such importance in nutrition problems as is usually supposed.

JOURNAL OF INFECTIOUS DISEASES.

November, 1912.

Experimental Studies on Milk.—E. H. Schorer takes up the study of milk in reference to the uniformity of different grades of milk, and the effects of storage upon certified, inspected, and pasteurized milks. These were based upon daily observations of samples covering a period of ten weeks. He mentions one point that is frequently disregarded by laboratory workers. That tests that give results readily and quickly are most important because a new supply of milk must be available daily. It is of little value to the consumer to learn that the milk he used yesterday or a week ago is unfit.

A Study of Streptococci from Milk.—E. C. Rosenow, during the recent epidemic of sore throat in Chicago, had the opportunity to study streptococci from numerous throats, from the pus of suppurating glands, and from exudates in a number of fatal cases. There were also epidemics in Boston and in Baltimore of the same general nature, being milkborne, and associated with similar streptococci. Rosenow found that streptococci, virulent for animals, but differing from typical *Streptococcus pyogenes* in more abundant growth, in being encapsulated and not forming chains, and in causing but little hemolysis, occur in predominating numbers in epidemic sore throat of milkborne origin. On artificial cultivation these strains sooner or later assume the characteristics of *Streptococcus pyogenes*. He also noted that by placing this streptococcus in unheated milk it becomes modified so as to correspond to the streptococci in epidemic sore throat.

The Production in vitro of Structures Simulating Negri Bodies.—Steinhardt, Poor, and Lambert report work undertaken to determine whether the Negri bodies are protozoa, as is held by some, or whether they are, as thought by the majority, to be degeneration products of nerve cells. In their experiments small pieces of the brain of rabbits and guineapigs were suspended in hanging drops of blood plasma obtained from the animal from which the brain was to be removed. These culture preparations were incubated at 37.5° C. for varying lengths of time. They found that the cells in these preparations showed in their protoplasm, when stained by Van Gieson's method, small pink

staining bodies surrounded by a blue, granular ring, indistinguishable from the unstructured Negri bodies observed with great frequency in the rabid guineapig brain. In a few instances these forms contained a central blue staining ring or point, and closely resembled some of the smaller structured forms of the Negri body.

Intraleucocytic Bodies in Scarlet Fever.—D. J. Glomset, in a study of the leucocytes in scarlet fever and other febrile diseases, as well as in health, concludes that the larger number of these bodies are of nuclear origin and may be produced by shaking the blood. Consequently he does not consider it justifiable to regard them as having any etiological significance.

Phagocytic Activity of Leucocytes in Measles.—Ruth Tunnicliff, from observations made on the blood of six measles patients, finds that the phagocytic activity of the leucocytes is decreased for the streptococcus, staphylococcus, and tubercle bacillus during the period of leucopenia. The activity, however, becomes normal with the increase in number of the leucocytes. It may be that the leucopenia and the diminution of the phagocytic activity of the leucocytes in measles may account in some degree for the frequency of secondary infections in this disease.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, May 20, 1912.

The President, Dr. REYNOLD WEBB WILCOX, in the Chair.

Wheat Bran in Constipation.—This paper, by Dr. A. ERNEST GALLANT, appeared in the JOURNAL for August 31, 1912.

Dr. ANTHONY BASSLER, though his interest in bran had long been great, had just learned a great deal. There could be no doubt as to the value of bran in constipation, and, in addition to its mechanical effect, he believed that it had some chemical action. There were, however, a certain proportion of cases in which, although there was no anatomical condition causing obstruction, bran failed altogether. In instances of this kind, although we gave the patient daily an ounce and a half of bran and an ounce of agaragar, beside prunes, exercise, water, etc., the bowels, after acting well perhaps for a few days, then slowed up, and it became necessary to supplement this hygienic treatment with cascara or some similar agent. Still, in a large number of cases bran proved all that was required. It was certainly a most valuable agent, and it was to be regretted that it was employed to so small an extent by the profession. Apparently the reason why it was not more used was because it was so cheap. It was particularly useful for children, in whom its good effect was even more noticeable than in adults.

The president, Doctor Wilcox, some time ago was called as an expert on behalf of the government in the trial of a case involving the merits of a certain advertised food which was alleged to be curative of all sorts of diseases. The assertion of the activity of this preparation was based on the alleged fact that the grain composing it was still alive; so that a person using it had all the benefit to be derived from living matter. The jury, however, decided that its alleged virtues had no foundation in fact, and the proprietor was fined. Doctor Gallant's paper was one of great practical value, and he agreed with Doctor Bassler that bran was not much used from the very fact that it was so cheap and so accessible.

Doctor GALLANT, in closing, said that to his mind bulk was the great thing about bran. The bulky stool squeezed

the intestine in a way that might be compared to the pressure of a skilled dairyman in milking a cow. Patients with habitual constipation often got used to laxative drugs, so that these lost their effect, and he had found bran successful in cases where every other means had failed. He was convinced that the autointoxication which was so common was due to the accumulation of feces in the bowel, as this favored the constant resorption of toxic matters. What we needed to prevent this something to excite active peristalsis and keep the intestinal contents moving, and his experience had shown that bran was a most serviceable agent for the purpose.

The Tissue Density Factor in Physiology and Pathology.—This paper by Dr. HOMER WAKEFIELD, appeared in the JOURNAL for July 27 and August 3, 1912.

Special Meeting in the Borough of Richmond, Held at St. George, Staten Island, June 10, 1912.

Dr. WILLIAM BRYAN in the Chair.

Observations from Three Hundred Cases Treated with Autogenous Bacterial Vaccines.—Dr. HENRY A. CRAIG, of New Brighton, said that autogenous vaccines, which were made from the bacteria obtained from the patient under treatment, were, whenever available, superior to stock vaccines, which consisted of bacteria from other sources, which might not correspond exactly to the bacteria at fault, for the reason that many of the great groups of bacteria had a large number of subdivisions. Infections were apt to be mixed, so that in making an autogenous vaccine it was usually wise not to isolate any particular organism, but to grow all together synergistically and to standardize the product according to the prevailing organism. In the present series of cases less than two thirds were due to infection of a single organism, while in the other third two or more organisms were found. In long continued infections it was advisable to make new cultures from time to time, in order to discover any change in the bacterial flora and make a new autogenous vaccine when necessary. The keynote of the treatment of all bacterial infections was the production of immunity, which meant the power by means of which a cure was effected, as well as the power to resist infection. The injection of the various sera produced passive immunity, as the protective agents were introduced into the body all ready for action against the toxins or bacteria; but, unfortunately, this immunity was but temporary and such treatment had but a narrow application. In the active immunity produced by bacterial vaccines, on the other hand, the body tissues were stimulated to produce their own protective agencies, as in the case of natural recovery from an infection, and this mode of treatment had a very wide applicability. It was indicated in every case where the causative organism, so far as known, could be obtained, but it necessitated sufficient vitality on the part of the body to respond to the stimulus of the vaccines. Hence, it should not be left as a last resort, when the natural forces had neither the time nor the ability to react, and in such cases the sera would promise more, by possibly producing a passive immunity which would require neither time nor effort on the part of the body.

In the battle between the body and the bacteria the body's chief means of defense consisted of the phagocytes, the principal of which were the white blood cells; a great standing army, capable of being doubled or trebled at short notice. Their weapons, without which they were helpless, were the opsonins in the blood serum, which did not stimulate the phagocytes to increased activity, but acted in such a manner upon the bacteria that the latter could be easily destroyed by the phagocytes. The effect of bacterial vaccines was to increase, not only the specific opsonins, but also the phagocytes; thus augmenting the number of soldiers as well as furnishing them with weapons. It was to be remembered, however, that the vaccines did not directly provide opsonins; they simply stimulated the body tissues, especially the subcutaneous connective tissue, to manufacture more of these. In using the vaccines we were simply imitating Nature, and they were not given by intravenous injection or by the mouth, but always injected into the subcutaneous connective tissue, where the opsonins were principally elaborated. Thence they were absorbed by the blood and carried to the site of the infection, if it were a local one, to assist the phagocytes. After the administration of bacterial vaccines the opsonins increased for approximately ten days, when the maximum was

reached. This was maintained for a time, and then they slowly decreased to normal, after a period of weeks or months. In many instances the immunity produced lasted much longer than the time during which antibodies could be found in the blood. In his cases Doctor Craig had made no attempt to measure the effects of the vaccine by taking the opsonic index, as the technic was so elaborate and the results varied too much to justify the time and work required. Clinical symptoms, plus the aid of general rules were sufficient guides as to dose, intervals between doses, etc. The cases here recorded were by no means picked cases, but were made up from everything that came along in hospital, dispensary, and private practice. In fact, in the hospitals, in many instances, only the worst cases were turned over for this treatment, so that in these the patients were apt to die before it could have any effect. Beside these cases, he had treated about a hundred with stock vaccines, often with good results; but these were not included in this report. The best results were obtained in cases of staphylococcus infections, and for these the treatment was practically a specific.

The series of cases included the following: Furuncles, thirteen cases. Generally, two or three doses were sufficient, and all were quickly cured except one which was a mixed staphylococcus and streptococcus infection of very long standing, about fifteen years; and this finally yielded to the treatment. Carbuncles, nine cases; three of them in diabetics. Some were of very severe character, but in all, the results were brilliant. In these cases it was necessary to make only a slight opening to let out the pus and detritus, instead of the enormous incisions and excisions formerly required. Cellulitis, fifty-four cases; of which twenty-three were staphylococcus, ten pure streptococcus, and the remainder mixed infections. Although some of them were very severe, with a temperature as high as 105° F., there were no failures. Most of them were incised, but not with such extensive cutting as would ordinarily be needed to control the spread of the infection. Abscess, twenty-three cases: five staphylococcus, two streptococcus, three colon, and the others mixed. The results were entirely satisfactory in every instance, and here, again, less extensive operations than usual were called for, while there was prompter healing and less danger of complications. Postoperative infections, forty-one cases; nearly all the result of the trouble for which the operation was done and not following clean operations. Gangrenous or perforated appendix, twenty cases; pyosalpinx, nine; gallstones or cholecystitis, three; hernia, five; ulcerating carcinoma of the breast, one; Cæsarean section (both cases infected before operation), two; nephrectomy, one. Many of the cases were of mixed infection. This was a class which was markedly benefited by autogenous vaccines, as was the case here, and none of these patients died. General peritonitis, ten cases: staphylococcus, two, of which one was fatal; colon, four, with one death; the others, mixed infection. All were desperate cases and were drained and received all the routine treatment. The low mortality of twenty per cent. was a remarkable result, and led one to believe that the vaccines helped out the operative measures.

Post partum infections, ten cases; staphylococcus, one, streptococcus, three, mixed staphylococcus, streptococcus and colon, six. All ended in recovery, though all were in a serious condition and some seemed hopeless, and this was a class of cases in which the vaccine treatment should be started as early as possible. Postabortion infection, ten cases: seven pure streptococcus, with two deaths, and the other three mixed infections. Apparently, these cases were worse than the post partum one, streptococcus infections being more common. Septicemia with positive blood cultures, four cases. Of these, one, a staphylococcus infection following osteomyelitis, was fatal; the other three (one colon, one staphylococcus, and one staphylococcus and streptococcus) ended in recovery. Septic endocarditis, two cases; both were fatal, one two days after the treatment was begun. For such infections vaccine treatment was of no avail, as the body was in no condition to manufacture its own protective agencies. Erysipelas, ten cases. One, in an infant which the speaker did not see personally, and which had been treated most of the time with a stock vaccine, ended fatally in exhaustion. The others cleared up with remarkable rapidity; the treatment undoubtedly cutting short the attack. Pneumonia, forty-four cases with seven deaths, a mortality of sixteen per cent. This,

he said, did not give a fair idea of the treatment, as in many of the cases it was given only as a last resort, and several patients died almost immediately from delirium tremens, toxemia, and other complications. In proper cases, where the treatment was instituted early, it was very gratifying to see the toxemia diminish, the delirium clear up and the course of the disease and convalescence shorten. In the Sailors' Snug Harbor on Staten Island, an institution for old men, where he had early access to all cases of pneumonia, for a whole year at one time there was not a single death from pneumonia, among nearly a thousand inmates. It had been found that the pneumococcus could be recovered from the blood in seventy per cent., or more, of all cases of pneumonia, and the preponderance of evidence was to the effect that the immunity against the disease was a phagocytic one. Therefore, it seemed that the vaccine treatment should be especially applicable here, though it was essential for the greatest success that it should be begun early. The treatment was given a trial in severe "colds," bronchitis, etc., once in his own person, when the results were very satisfactory, time and much discomfort being saved. These cases were due to a mixed infection, with *Micrococcus catarrhalis* predominating, though at times the streptococcus was very evident.

Empyema, five cases: pneumococcus, two, colon bacillus, one, mixed staphylococcus and streptococcus, two. One ended in exhaustion, three in recovery, and one, still under treatment, was nearly well. When of recent origin, empyema was undoubtedly benefited by the treatment, but in serious chronic cases it could be expected only to diminish the discharge and lessen the toxemia. Osteomyelitis, five cases, with two deaths. Here the treatment could not accomplish much, as there was generally dead bone present and septic absorption was too rapid. In infected compound fractures, however, it was of unquestioned benefit by preventing spread of the infection, as shown by four cases in this series. Otitis media, acute cases, seventeen, chronic, six; staphylococcus, five, streptococcus, two, the others, mixed infections. In the acute cases the treatment seemed of benefit in all except one, where severe operative interference was eventually required. Generally, it rapidly diminished the fever and discharge and also lessened the duration and the danger of complications. Theoretically these were ideal cases for vaccine therapy, and, combined with early paracentesis, it would undoubtedly save many a mastoid. In chronic cases dead bone was frequently present, and all that could be reasonably hoped for from the treatment was to diminish the discharge and possibly prevent the spread of the infection; though recently he had had extremely good results in the clearing up of a chronic discharge in two cases, one of four, and the other of eleven years' duration.

Mastoiditis, three cases: the treatment being given after the radical operation. One patient, an infant, died after six weeks from exhaustion, and the other two recovered; one, at least apparently, being greatly benefited. Pyelitis, nine cases, all colon infections. Here an autogenous vaccine might control the infection of the mucous membrane, diminish the pus in the urine, and, by relieving the toxemia, give the patient a subjective cure, but it was difficult to get rid of the bacteria in the urine, as they were beyond the reach of the phagocytes. Asthma, three cases. One, a bad case of spasmodic asthma, was not at all benefited, one was said to be cured, though it was as yet too early to decide positively, and one was still under treatment, but reported as greatly improved.

In concluding, Doctor CRAIG said that vaccine treatment, obviously had its limitations, but, even when employed in unsuitable cases or where the patient had not sufficient vitality to react, there seemed no reason to fear any harm from it if it were administered with proper precautions. It could not take the place of surgery, but it was often a very useful adjunct to surgical procedures, and, altogether, it was unquestionably a great addition to our armamentarium for the treatment of bacterial infections.

Doctor CRAIG remarked in answer to a question by Dr. J. H. Branth that in two cases of cancer, one of the breast and the other of the throat, he had employed a vaccine made from *Bacillus neoformans*, the organism found at times in cases of malignant disease, but with absolutely no result. He went on to say that cocci were distinguished from bacilli by their morphological appearance. The coccus was a minute organism resembling a seed (whence its name), while the bacillus was rod shaped. The vaccine

consisted of a suspension in normal salt solution of the bacteria found in the patient, which were killed by heat or chemicals and standardized by enumeration and dilution, and he briefly outlined the technic of its preparation from bacterial cultures, which, he said, required considerable time and patience. To prevent contamination a preservative, such as phenol, was added. It was impossible to state the average duration of the treatment in cases of septicemia, as these varied so greatly in severity. As to pneumonia among the inmates of Sailors' Snug Harbor, the records for ten years previous to the use of bacterial vaccines showed that the mortality from the disease amounted to 60.3 per cent. The difference, therefore, was very striking.

Diagnosis of Colon Bacillus Infection of the Urinary Tract.—Dr. CARL KINGSLEY, of West New Brighton, said that, in spite of our ever increasing knowledge of this condition, as recently as 1907 such masters as Lenhartz and Friedrich Muller had confessed that some characters of it were unknown to them and asserted that even at the present time the diagnosis was frequently overlooked. Often it was only after many false starts, numerous symptomatic prescriptions, and considerable mental disquietude on the part of the physician, that the possibility of an insidious pyelitis presented itself. Beside urinary tract infections, many cases of *Bacillus coli* invasions had been reported, including septicemia, meningitis, pneumonia, and cholecystitis. Just why an organism so constantly present in large numbers in the body should be the cause of disease seemed difficult to explain. The present accepted view classed it with the pneumococcus and others as an outside organism, since none of its toxic products were absorbed through the unbroken intestinal mucosa, and consequently no immunity had been established against it. Inflammatory processes caused by other organisms might give it foothold by producing unusual temporary reduction of resistance of the host, and the etiology of colon bacillus infection of the urinary tract might therefore depend upon lowered vitality due to some general or special cause. The portal of entry of the bacillus was generally assumed to be extension upward through the urethra, often associated with diarrhea and consequent constant contamination of the vulvovaginal ring in female infants. Many authors, however, believed in the possibility of direct extension to the bladder from the colon or of hemotogenous infection. The present paper was based on nine cases, four in his own practice and five in that of others. All were in females, five in young children and four in adults.

In most of the cases we read of or saw the abrupt onset and severe reaction were characteristic. An infant suddenly became blue and cold, seemingly collapsed, and then there came on a rapidly mounting and inexplicable fever. Extreme misery and restlessness might be striking, soon replaced by a drowsy or semicomatose condition, with a hot, dry skin. Cerebral disease might be suspected. In some instances we might find the abdomen a trifle full. In an infant tenderness might be difficult to elicit on account of restlessness, but in older patients abdominal pain might resemble almost any acute condition, as appendicitis or cholecystitis. Fever, leucocytosis, and abdominal tenderness, especially in the costovertebral angle, were suggestive, and if pus was found in the urine we might avoid a useless and dangerous operation. Symptoms of a cystitis might put us on the right track. Acute pyelitis, as statistics had shown, was much less common in older children and adults than in infants.

So far, he had been treating of the more acute forms of colon bacillus infection of the urinary tract. It was often the subacute or chronic forms, long undiagnosed and untreated, which proved even greater diagnostic stumbling blocks. Not infrequently such cases were mistaken for instances of chronic malaria. The acute cases, therefore, might be confounded with abdominal or thoracic conditions, as appendicitis or pneumonia, meningitis, gastroenteritis, dentition fever, or other acute affection, while typhoid, influenza, malaria, or tuberculosis might be applied to more chronic cases, which might even resemble pyemia or endocarditis. In both acute and chronic cases, however, we had an almost characteristic urine to help us, and even though the patient were a baby, we should not neglect this important examination in all instances of cryptic fever. The specimens examined by him had uniformly been of great acidity, and usually of high specific gravity. Several had shown a soapy opalescence, while

others had been simply cloudy. In all instances large numbers of pus cells, mainly polymorphonuclear, were seen under the microscope. In some, an occasional red blood cell was found; besides many squamous, caudate, and spindle shaped epithelial cells. Sluggishly mobile, rodlike bacilli were invariably present, and, when appropriately cultivated, these proved to be colon bacilli. Other infectious bacilli invaded the urinary tract but rarely, and an acid urine full of bacilli and pus meant practically in all cases colon bacillus infection. The possibility of a renal calculus with a secondary pyelitis was to be remembered, as well as the fact that tubercle and colon bacilli might co-exist as a mixed infection; but recovery under appropriate treatment would exclude these possibilities. We had been told that there was no such thing as cystitis, but we might have to exclude a urethritis which would cause pyuria, though scarcely a bacilluria. As to the treatment, as this bacillus would not grow in an alkaline medium, alkalization of the urine was nearly a specific in primary colon bacillus pyelitis, and for this purpose potassium citrate was the drug of choice. Some cases of cure by autogenous vaccines had been reported, and if simple treatment should fail, a chronic case might yield to this.

Dr. R. E. VAN GIESON said that the colon bacillus seemed sometimes to be very virulent, and sometimes not at all so, and he was inclined to believe that some of these cases were not actually due to this agent. As to the treatment, he had found that his cases of pyelitis cleared up very rapidly under the use of urotropin.

Dr. J. MILTON MABBOTT said he had used potassium citrate with great satisfaction in this class of cases for the past eight or ten years. He had seen many instances of pus in the urine, with calculus, in which the exact bacillus present was not determined.

The president, Dr. REYNOLD WEBB WILCOX, said it seemed that the cure of pyelitis was not to be attributed altogether to alkalies, since it was found that hexamethylenamine, or urotropin, which required an acid medium, was even more efficient. In the various pathological conditions due to colon bacillus infection, and which had been exhaustively set forth in a paper by Doctor Kemp before the association in October last, the combination of sodium benzoate with urotropin, as recommended by Dr. William H. Thomson, was undoubtedly of great service.

Weak Foot, with Demonstration of Foot Strapping and the Taking of a Cast for Plates.—Dr. IRVING D. STEINHARDT, of Manhattan, said that the condition of weak foot, from which a large percentage of the entire population suffered, was constantly overlooked, and that to some extent the mistaken diagnosis was no doubt accounted for by the fact that many of the great variety of symptoms it presented were far removed from the vicinity of the feet. It was unfortunate that it was so generally called flat foot, as this was misleading and was one cause for the common overlooking of the condition. While every case of flat foot was one of weak foot, not every pair of weak feet were flat feet. With the weakening of the ligaments of the tarsal bones, followed by the giving way of the supporting muscles, we had a partial or complete obliteration of the arch, together with a varying degree of eversion of the foot. The causes of weak foot were numerous, and perhaps the principal one was improper shoes. Among the other causes were general debility, lack of development of the lower limbs, obesity, and occupations requiring much standing or stair or ladder climbing. Although weak foot had been classified under a number of subdivisions, the symptoms of all were practically the same; varying only in degree. Among the complications were varicosities of the veins, hypertrophy of the tubercle of the os calcis, thickening of the lower end of the tibia from chronic inflammation of the epiphysis, gout, rheumatism, etc. The symptoms were both subjective and objective. The patient would perhaps complain of tiring quickly when walking, of pain when walking after standing for a time, of stiffness and difficulty in attempting to walk after a rest. The complaint of pain might include some in the ankles, calves, knees, thighs, hips, and back. Muscular strain and stretching was responsible for much of the knee pain, and night cramps of the lower leg muscles were of frequent occurrence. Pathological changes in the tissues might cause increased pain, stiffness, and disability in damp or changeable weather, and this accounted for the wrong diagnosis, frequently made, of rheumatism or arthritis. Among the objective symptoms were eversion of varying degree and

limited range of motion in the foot, while swelling around the ankle joint, more particularly on the outer aspect, was very common, especially in fleshy subjects. The pain experienced by the patient was not infrequently very much out of proportion to the findings of an examination of the parts. In making the diagnosis it would be found that in the imprint of the foot upon paper after smearing the sole with petrolatum, or upon the floor after being dipped in water, the width of the line on the outer side would show to just what extent the arch was lowered.

As to the treatment, in the simple cases proper arch plates, plus massage and foot gymnastics, would bring immediate relief and future cure. The wearing of shoes conforming to the shape of a normal foot was essential. He was accustomed to order at first an extra sole, about one sixteenth to one eighth of an inch thick at the inner border of the foot and gradually decreasing in thickness to the centre, where it was merged with the regular sole of the shoe. This remained in the shoe until the patient was fitted with the proper kind of arch plates. No feet were ready for these plates until they were freely movable to overcorrection, and foot gymnastics, strapping, and massage, either hand or vibratory, were ordered. Having described the exercises to be prescribed for the feet, he demonstrated on a subject his method of strapping (for which he employed zinc oxide plaster) while the foot was held firmly in a position of flexion and inversion. The strappings, he said, were usually changed twice a week.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Textbook of Medical Jurisprudence and Toxicology. By JOHN J. REESE, M.D., Late Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania, Late President of the Medical Jurisprudence Society of Philadelphia. Eighth Edition. Revised by D. J. MCCARTHY, A.B., M.D., Professor of Medical Jurisprudence (George B. Wood Foundation) in the University of Pennsylvania, Neurologist to the Philadelphia General and St. Agnes Hospitals, etc. Philadelphia: P. Blakiston's Son & Co., 1911. Pp. ix-660. (Price, \$3.)

In the new edition of this favorably known manual such additions have been made as will place the subject matter abreast of recent practices and findings. The chapter on insanity has been extensively altered, to place it in conformity with the classification of mental diseases now generally accepted. A chapter, Commitment of the Insane, in which the regulations established by various States as to the restraint and general care of these patients are summarized, and the duties of the physician in relation to their commitment explicitly given, has been introduced after the section on insanity. Throughout the portion on medical jurisprudence, which occupies a little over three fifths of the volume, the text is characterized, as before, by conciseness and, withal, completeness as regards the range of subjects taken up. In the portion of the book devoted to toxicology the subjects of formaldehyde poisoning and chronic bismuth poisoning have been amplified. Some information on the subject of anaphylaxis has been added at the close of the volume. The toxicology section will be found up to date in nearly all respects. One minor deficiency noted is the omission of reference to gelseminine, the most active constituent of gelsemium, in the description of this drug. For the treatment of chloral hydrate poisoning picrotoxine is the only agent suggested; this subject had better be amplified or else left out. *Convallaria majalis* (p. 542) is a slip which should be corrected. Leaving out of consideration these slight imperfections, the work is an admirable one, which will no doubt enjoy the same popularity among practitioners and students that it has already secured in its previous editions.

Flatulence and Shock. By F. G. CROOKSHANK, M.D., Lond., M.R.C.P., Honorary Physician to the Western General Dispensary, Marylebone, N. W., etc. London: H. K. Lewis, 1912. Pp. vi-47.

With a distinct taste for style in medical writing we confess to reading at one sitting the two essays making up

this delightful little volume, whose modest and unaffected humor in no way impairs the value of its reasoning. A victim himself of flatulence the author believes that in many cases it is due to a real secretion of gas caused by vagal disturbance. To colleagues who may suffer as he suffers, Doctor Crookshank offers "in strictest confidence" the advice to secure as a remedy a bottle of the very best crème de menthe, and to sip it slowly and steadily until better. For ordinary, nonprofessional patients, more orthodox remedies are duly prescribed. Proper credit is given to Sajous for the original suggestion as to the possible implication of adrenal secretion as one of the active elements in the management of internal respiration or tissue gas exchange, and it is gratifying if somewhat surprising to read that the author hopes that British investigators of the subject may now stand on the same plane as the "most eager workers in Continental and transatlantic laboratories."

In the second essay on shock, credit is given to Henderson, of Yale, and Crile among others. The conclusion is that shock without demonstrable lesion is a very real condition, but varies with the personal equation of suggestibility or "shock value." We recommend this booklet as an admirable example of what an imaginative scholar can do with dry facts and as offering two well high perfect types of what medical communications ought to be.

A Manual of Surgical Treatment. By Sir W. WATSON CHEYNE, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., Honorary Surgeon in Ordinary to His Majesty the King, etc., and F. F. BURCHARD, M.S., F.R.C.S., Surgeon to King's College Hospital, etc. New Edition. Entirely Revised and Largely Rewritten with the Assistance of T. P. LEGG, M.S., F.R.C.S., Surgeon to the Royal Free Hospital, etc., and ARTHUR EDMUNDS, M.S., F.R.C.S., Surgeon to the Great Northern Central Hospital, etc. In Five Volumes. Volume III. The Treatment of the Surgical Affections of the Joints, the Spine, the Head, and the Face. Philadelphia, and New York: Lea & Febiger, 1912. Pp. xxviii-575.

The third volume of this important work is devoted to the treatment of the surgical affections of the joints, the spine, the head, and the face. The two preceding volumes dealt chiefly with general considerations; the present volume is the first one to take up regional surgery and begins with the head and face. The chapters dealing with the diseases of joints are very full and treat the subject very systematically. The chapters on tuberculosis of joints are particularly clear and up to date in pathology and treatment. The newer operations for recurrent dislocation of the shoulder, drainage of the knee joint, and arthroplasty are described in full detail and illustrated by excellent drawings. The second half of the volume, dealing with surgical affections of the head and face, devotes considerable space to the traumatic lesions of the skull and endocranial contents and will be found of great interest and value to the student first learning the principles governing this most important field of surgery. The latest operations on the brain such as Cushing's temporal decompression, removal of the Gasserian ganglion, and exposure of the cerebellum find a full description. This volume is fully up to the high standard set by the two which preceded it. It is essentially practical and will be found an excellent textbook for the student as well as a valuable book of reference and review for the surgeon and general practitioner.

The Hunterian Lectures on Color Vision and Color Blindness. Delivered before the Royal College of Surgeons of England on February 1 and 3, 1911. By Professor F. W. EDRIE-GREEN, M.D., F.R.C.S., Beit Medical Research Fellow. New York: Paul B. Hoeber, 1912. Pp. 76. (Price, \$1.50.)

This little book presents in very readable form what is at present known in regard to the theory and facts of color vision and color blindness, and the detection of the latter from a practical point of view. The writer objects to the term "color blindness," because it is not a good name for the condition to which it is applied. In most cases there is no blindness, in the ordinary acceptance of the term to colors. Those who confound red and green do so because both give rise to a similar sensation of color. The greatest number of distinct colors that can be seen is seven, while many persons see only six, five, four, three,

or two, in proportion to the development of their color perceiving centres; hence colors that are not the same are put together as alike by those who see only two or three. The evidence that the visual purple is the essential factor in vision is given at considerable length. The entoptic evidence obtained by the author is very interesting, as is the theory of the evolution of the color sense. Defects of light perception and of color perception, dichromic and trichromic vision are dealt with clearly and briefly. Under the practical detection of color blindness the object of the test is first considered, then come the requirements, the persons to be excluded from certain callings, the construction of a test, the lantern test devised by the author, and various other tests. The work is a valuable one for any person who is liable ever to be called upon to make an examination for color blindness.

Sprue. Its Diagnosis and Treatment. By CHARLES BEGG, M. B., C. M. Edin., Formerly Medical Officer Chinese Imperial Maritime Customs, and H. B. M. Medical Officer, Hankow, China. Illustrated. New York: William Wood & Co., 1912. Pp. vi-124. (Price, \$2.)

Doctor Begg in this book gives the results of over thirty years' clinical work in connection with sprue. Brief chapters are devoted to the pathological changes, the author holding that the disease is caused by microorganisms, although no specific invader has been demonstrated. Diagnosis is dealt with quite freely, sprue being defined as a tropical disease characterized by the passage of bulky acid motions, with progressive emaciation and contracted liver. The treatment advocated is the use of santonin that has become golden yellow as a result of long exposure to light. The book would be of interest to those dwelling in countries where the disease prevails.

Aids to Histology. By ALEXANDER GOODALL, M. D., F. R. C. P. (Edin.) Lecturer on Physiology, School of Medicine of the Royal Colleges, Examiner in Physiology to the Royal College of Physicians, Edinburgh. New York: William Wood & Co., 1912. Pp. viii-135. (Price, \$1.)

This is a convenient little book for students, also for physicians who have not acquired elementary histology when at college. A few pages might well have been added to its ten page section on histological methods to convey the latter more clearly. The main defect in the book, however, lies in the illustrations, rough sketches which any freshman in a modern medical school could surely improve upon. With several beautifully illustrated books on the market such illustrations are inexcusable.

Zur Morphologie der Nierensekretion unter physiologischen und pathologischen Bedingungen. Von Dr. TATZUO SUZUKI, Arzt in Japan. Mit einem Vorwort von L. ASCHOFF, Freiburg i. Br. Mit 6 Abbildungen im Text und 6 Tafeln. Jena: Gustav Fischer, 1912. Pp. viii-244.

This publication represents a tremendous amount of work in determining, by experiments upon the lower animals, the changes occurring in the kidney as a result of the administration of poisonous substances. The last sixty pages are devoted to an analysis of the finer structural changes occurring in the different portions of the tubule and the correlation of the functional disturbances with the morphological changes. The presentation is a very thorough one and contains much valuable information particularly in the summaries following the different chapters dealing with the experimental reactions.

Public Health Chemistry and Bacteriology. A Handbook for D. P. H. Students. By DAVID MCKAIL, M. D. (Glas.), D. P. H. (Camb.), F. R. F. P. S. G., Lecturer on Public Health and Forensic Medicine, St. Mungo's College, Glasgow. Lecturer on Hygiene to Nurses, Glasgow Royal Infirmary, etc. New York: William Wood & Co., 1912. Pp. vii-409. (Price, \$2.50.)

The first portion of 147 pages of Doctor McKail's work is devoted to public health chemistry, including water analysis, examinations of air, soils, foods, beverages, and disinfectants. As illustrations are omitted the subjects are dealt with very thoroughly. Chemical procedures are given in detail. In the chapter on water analysis emphasis is laid on the necessity of using all evidence, bacteriological as well as chemical, before a definite opinion is formed. The remaining 250 pages are devoted to bacteriology. This

section is very complete, the chapter on plague especially, containing a summary of the *Lancet* reports of the plague in China during 1910-11. Tuberculosis is treated fully and there is a summary of the final report of the British commission which concluded unanimously that the human tubercle bacillus could be transmitted to cattle, and that the bovine tubercle bacillus is dangerous to man. This book is a very useful one to both chemist and bacteriologist and can be recommended highly.

Taschenbuch der Therapie mit besonderer Berücksichtigung der Therapie an den Berliner, Wiener u. a. deutschen Kliniken. Herausgegeben von Dr. M. T. SCHNIRER, Redakteur der Klinisch-therapeutischen Wochenschrift. Neunte Ausgabe. Nachdruck auch einzelner Teile verboten. Würzburg: Curt Kabitzsch, 1913. Pp. xix-476.

By bringing upon the market every year a revised edition, editor and publisher have succeeded in supplying the medical profession with a reliable condensed prescription book, containing all the old as well as the new drugs, their indications and combinations. We have reviewed all the previous editions and are pleased to introduce the ninth to the medical public. The little manual can be well recommended.

Beitrag zur Klinik und Histopathologie der gutartigen Hautepitheliome. Von Privatdozent Dr. WALTER FRIEBOES, Assistent an der Universitätsklinik für Hautkrankheiten. Mit 27 Abbildungen auf 10 Tafeln. Berlin: S. Karger, 1912. Pp. 95.

A careful study of the cases recorded under the titles of benign cystic epithelioma, epithelioma adenoides cysticum, lymphangi endothelioma, etc., leads the author to the conclusion that these new growths are true epitheliomata. Their relationship to various nevoid growths is indisputable; and the author proposes as a general designation for the entire group the name selected by E. Hoffmann, adenoid naevoe epitheliomata. An illustration of a well marked case, with several colored drawings of the microscopic findings, serves to elucidate the text. The whole forms a useful general monograph for those interested in the subject.

Urologischer Jahresbericht. Edited by Prof. A. KOLLMAN and Dr. S. JACOBY. Published at Leipzig: Dr. Werner Klinkhardt, 1912. Pp. 499.

This review of the urological literature of 1911 is more complete if anything than its predecessors. If one is willing to wait for the appearance of this volume one need not take the trouble to read any genitourinary publications in order to be conversant with the literature. After a complete review of the physiology and anatomy of the genitourinary organs, diseases and treatment of both male and female are taken up. Urine chemistry and bacteriology are not neglected and the last chapter is devoted to diseases of the genitourinary apparatus of the dog. The index is very complete.

Lehrbuch (früher Kompendium) der Haut- und Geschlechtsleiden einschliesslich der Kosmetik. I. Band: Hautleiden und Kosmetik. Von Sanitätsrat Dr. S. JESSNER. Vierte sehr erweiterte Auflage. Mit 33 Abbildungen auf 31 farbigen Tafeln und 7 Abbildungen im Text. Würzburg: Curt Kabitzsch, 1913. Pp. xvi-96.

This textbook has grown out of the *Dermatologische Vorträge* which Jessner has been publishing for many years, and possesses the merits as well as the inevitable drawbacks of a compendium designed for quick reference rather than for thorough consideration of the subjects treated. Thus the anatomy of the skin is disposed of in some ten pages, and is illustrated only with a section of the nail, one showing the vascular supply of the integument, and three plates. In equally brief manner the author treats of the various therapeutic agents usually employed, of physical therapeutics, including thermotherapy, hydrotherapy, electrotherapy, phototherapy, and radiotherapy. Functional disturbances are then considered; and this first portion of the work terminates with a brief consideration of some of the circulatory disturbances of the skin. The work is an excellent ready reference compendium especially for those who only occasionally require its aid incidentally to general practice; it contains the latest in abstracted form. It is necessarily incomplete, however; and

it seems to us that it would have been better to retain the more modest title than to dignify it with the title of textbook.

Miscellany.

Scientific Street Cleaning.—Mrs. Flora N. Spiegelberg sends us a clipping from the *New York Times* for December 8, 1912, in which appears her article entitled *The City Clean Should Be the Slogan of Women*. Along with this clipping are two illustrations which did not appear in the *New York Times* article and which we reproduce below, and the following letter:

To the Editor:

I trust the enclosed article will appeal to you as much as my address last year before the Women's Health Protective Association on the same subject. This latest German scientific economic incinerating method, aside from yielding a large revenue to the city, will be sanitary, dustless, odorless, and will starve the fly instead of swatting it. It will do

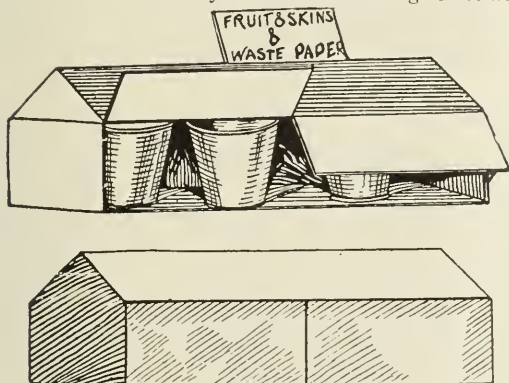


FIG. 1.—Box left on curb for street sweepers.

away with the dumps, prevent ash and garbage from standing uncovered on the sidewalks, or heaps of refuse in the streets. It will likewise prove the most effective means of cleaning up our filthy tenement quarters and thus reduce tuberculosis and other diseases. I have many more data on that subject at your disposal. You will remember that I suggested last year to the health department and person-



FIG. 2.—Can containing collection of refuse.

ally pleaded with Doctor Lederle to have all old carpets removed from the car seats, likewise the filthy straps, possibly twenty years old. Imagine distributing millions of these transfers to poor, ignorant people in just such carpet covered car seats. This is really a joke were it not so

serious—our German cousins only laugh at us. When will we learn municipal efficiency as in Germany? I appeal to you again this time for publicity because you gave my address such courteous consideration.

Figure 1 shows the covered box which, in German cities, is left on the curb for the street sweepers; the upper view is of the box opened in order to show the cans awaiting removal.

Figure 2 shows between the drivers the large can containing a mixed collection of refuse. This can is dustless, which prevents the men from being choked with dust or covered with grease or decomposed garbage; it is of reasonable size and not a heavy receptacle or barrel, the lifting of which is likely to cause physical injury such as often occurs in our cities. Our men are frequently compelled to work under conditions not fit for pigs. This is a crying abuse and should not be permitted by the Department of Health after the expiration of the present contracts in 1914.

FLORA N. SPIEGELBERG.

Meetings of Local Medical Societies.

MONDAY, January 20th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Elmira Clinical Society; Hartford, Conn., Medical Society.

TUESDAY, January 21st.—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Triprofessional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Clinical Society of Elizabeth, N. J., General Hospital; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Psychiatric Society of Ward's Island; Medical Society of the County of Westchester.

WEDNESDAY, January 22d.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Medical Union, Buffalo (annual).

THURSDAY, January 23d.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Bronx Medical Association (annual); New York Physicians' Association; New York Celtic Medical Society; Hospital Graduates' Club, New York (annual).

FRIDAY, January 24th.—New York Academy of Medicine (Section in Public Health); Academy of Pathological Science, New York; New York Society of German Physicians; New York Clinical Society; Manhattan Medical Society.

SATURDAY, January 25th.—West End Medical Society, New York; New York Medical and Surgical Society; Harvard Medical Society, New York; Lenox Medical and Surgical Society, New York.

Official News.

Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 8, 1913:

Carter, Henry R., Senior Surgeon. Upon being relieved by Surgeon W. P. McIntosh, directed to proceed to Baltimore, Md., and assume command of the Marine Hospital at that port. **Cumming, H. S.,** Surgeon. Directed to report to the director of the Hygienic Laboratory, Washington, D. C., for special instruction. **Fauntleroy, C. M.,** Assistant Surgeon. Upon being relieved by Acting Assistant Surgeon W. J. Linley, directed to proceed to Honolulu, Hawaii, and report to the chief quarantine officer for duty. **Fox, Carroll,** Passed Assistant Surgeon. Relieved from duty at Manila, P. I., upon arrival of Passed Assistant W. A. Korn, and directed to proceed to San Francisco, Cal., and report his arrival to the bureau. **Glover, M. W.,** Passed Assistant Surgeon. In compliance with the request of the State Board of Health of California, directed to make a survey to ascertain the prevalence of trachoma among the school children in certain sections of Tulare

County. **Krulich, E.**, Passed Assistant Surgeon. Directed to report to the Bureau of Medicine, Washington, D. C., for conference relative to medical relief of the natives of Alaska. **Lyon, R. H.**, Assistant Surgeon. Granted leave of absence for two months and fifteen days from December 14, 1912. **McIntosh, W. P.**, Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed to Louisville, Ky., and assume command of the Marine Hospital at that port. **McLaughlin, A. J.**, Passed Assistant Surgeon. Granted six months' leave of absence, without pay, from January 1, 1913.

Boards Convened.

Board of commissioned officers convened to meet at the bureau, Monday, January 13, 1913, at 10 o'clock a. m., for the examination of candidates for appointment as assistant surgeon in this service. Detail for the board: Senior Surgeon D. A. Carmichael, chairman; Surgeon John McMullen, member; Surgeon L. L. Lumsden, recorder.

Board of medical officers convened to meet at Port Huron, Mich., for the examination of a detained alien. Acting Assistant Surgeon W. J. Duff detailed as chairman of the board.

Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 11, 1913:

Blanchard, Robert M., Captain, Medical Corps. Relieved from duty at Fort Sheridan, Ill., and will proceed to Fort Strong, Mass., for duty. **Boyer, Perry L.**, Captain, Medical Corps. Left Madison Barracks, N. Y., to inspect Sanitary Troops, New York Militia at Albany, Troy, and Utica. **Cole, Clarence Le R.**, Captain, Medical Corps. Relieved from duty at the Army Medical School, Washington, D. C., and will proceed to Fort Leavenworth, Kansas, for duty. **Collins, C. C.**, Major, Medical Corps. Leave of absence extended ten days. **Dickenson, Clarence F.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Whipple Barracks, Ariz., and will proceed to the Philippine Islands for duty on March 5, 1913. **Duval, Douglas F.**, Major, Medical Corps. Left Fort Benjamin Harrison, Ind., on January 8th, on ten days' leave of absence. **Eastman, William R.**, Major, Medical Corps. Reports arrival at Columbus, N. M., for duty. **Foley, Thomas M.**, First Lieutenant, Medical Reserve Corps. Granted leave of absence for one month and fifteen days. **Freeman, Paul L.**, Captain, Medical Corps. Relieved from further duty in the Philippines Division and detailed in the Army Transport Service, with station at San Francisco, Cal. **Frick, Euclid B.**, Lieutenant Colonel, Medical Corps. Granted thirty days' leave of absence from January 1, 1913. **Glennan, James D.**, Lieutenant Colonel, Medical Corps. Leave of absence further extended twelve days. **Halls, James F.**, Major, Medical Corps. Granted leave of absence for four months on surgeon's certificate of disability, with permission to apply for two months' extension. **Holland, Josiah H.**, Lieutenant, Medical Corps. Granted leave of absence for two months and fifteen days. **Kellam, F. C. A., Jr.**, Lieutenant, Medical Corps. Left Fort Clark, Texas, on January 6th, on thirty days' leave of absence, with permission to apply for thirty days' extension. **Mudd, Lee C.**, Lieutenant, Medical Corps. Relieved from duty at Fort Leavenworth, Kansas, and will take transport for Honolulu on March 5th for duty at Fort Shafter; granted ten days' leave of absence from January 6th. **Munson, Edward L.**, Major, Medical Corps. Will report to the examining board at the Army Medical Museum building for examination for promotion. **Phalen, James M.**, Captain, Medical Corps. Relieved from duty as attending surgeon, New York city, and will proceed to Fort Sheridan, Ill., for duty. **Pratt, John M.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Fort Ethan Allen, Vt., for duty. **Richardson, William H.**, Captain, Medical Corps. In addition to present duties, will perform the duty of attending surgeon, Headquarters, Department of California, San Francisco, Cal. **Schmitter, Ferdinand.**, Captain, Medical Corps. Detailed a member of the board of medical officers ap-

pointed for the purpose of studying tropical diseases as they exist in the Philippine Islands; relieved from duty at Fort Greble, R. I. **Sharpe, Herbert H.**, Lieutenant, Medical Corps. Ordered to temporary duty on the transport *Sheridan*. **Siner, Joseph L.**, Lieutenant, Medical Corps. Relieved from duty at Fort Ethan Allen, Vt., and will take the transport for Honolulu on March 5th, for duty at Schofield Barracks. **Thornburgh, R. M.**, Major, Medical Corps. Granted leave of absence for two months. **Webber, Henry A.**, Major, Medical Corps. Leave of absence extended fifteen days.

Births, Marriages, and Deaths.

Married.

Baird—Blythe.—In Cedar Rapids, Iowa, on Tuesday, December 31st, Dr. Charles Glen Baird and Miss Margaret Mary Blythe. **Lesser—Taylor.**—In New York, on Saturday, January 4th, Dr. Mozart Monae Lesser, Jr., and Miss Isabel Taylor. **McCubbin—Cooper.**—In San Francisco, Cal., on Tuesday, December 31st, Dr. Hardy Lewis McCubbin and Mrs. Cora A. Cooper.

Died.

Baldwin.—In White Hall, Md., on Friday, January 3d, Dr. Thomas C. Baldwin, aged forty-four years. **Barry.**—In Denver, Colo., on Saturday, December 28th, Dr. Joseph D. Barry, aged thirty-six years. **Bell.**—In Lowell, Mass., on Saturday, January 4th, Dr. Robert E. Bell, aged fifty-three years. **Bosley.**—In Baltimore, on Sunday, January 5th, Dr. James Bosley, aged sixty years. **Burlington.**—In Duryea, Pa., on Tuesday, December 31st, Dr. John A. Burlington, aged forty-nine years. **Cabill.**—In Cambridge, Mass., on Tuesday, December 24th, Dr. George Stephen Cahill, aged forty-eight years. **Carlin.**—In Boyds, Md., on Saturday, January 4th, Dr. James S. Carlin, aged seventy-six years. **Clifford.**—In Denver, Colo., on Sunday, December 29th, Dr. Benjamin K. Clifford, aged twenty-eight years. **Crothers.**—In Chester, Pa., on Wednesday, January 1st, Dr. L. Haines Crothers, aged thirty-five years. **Daniel.**—In Disputanta, Va., on Saturday, December 28th, Dr. Charles C. Daniel, aged twenty-eight years. **Donnelly.**—In Toledo, Ohio, on Saturday, January 4th, Dr. Peter Donnelly, aged forty-four years. **Green.**—In Little Rock, Ark., on Monday, January 6th, Dr. William Elza Green, aged sixty-eight years. **Hillyer.**—In Saginaw, Mich., on Thursday, December 26th, Dr. E. H. Hillyer, of Merrill, aged sixty-four years. **Howard.**—In Fort Worth, Texas, on Wednesday, December 25th, Dr. William R. Howard. **Humiston.**—In Boston, on Tuesday, December 31st, Dr. Franklin G. Humiston, of East Jaffrey, N. H., aged fifty-six years. **Johnson.**—In San Antonio, Texas, on Thursday, January 2d, Dr. Daniel B. Johnson, aged eighty-two years. **Jones.**—In Baton Rouge, La., on Tuesday, December 31st, Dr. Thomas S. Jones, aged eighty-five years. **Kendig.**—In Lancaster, Pa., on Monday, January 6th, Dr. Benjamin Sangree Kendig, aged eighty-six years. **Kennedy.**—In Troy, S. C., on Thursday, December 26th, Dr. C. L. Kennedy. **Massenburg.**—In Towson, Md., on Monday, December 30th, Dr. Richard C. Massenburg, aged sixty-seven years. **Mothershead.**—In Earlington, Ky., on Tuesday, December 31st, Dr. N. G. Mothershead, aged seventy-two years. **O'Brien.**—In Brooklyn, N. Y., on Monday, January 6th, Dr. Keran O'Brien, aged forty-two years. **Osgood.**—In Lowell, Mass., on Sunday, January 5th, Dr. George C. Osgood. **Owsley.**—In Sonora, Ky., on Friday, December 27th, Dr. J. H. Owsley, aged seventy-seven years. **Pierce.**—In New York, on Wednesday, January 8th, Dr. Willard Ide Pierce, aged fifty-six years. **Priestman.**—In Chicago, on Wednesday, January 1st, Dr. John Priestman, aged eighty-three years. **Stevenson.**—In Morenci, Mich., on Monday, December 30th, Dr. Samuel Stevenson. **Veeder.**—In Pittsburgh, Pa., on Saturday, January 4th, Dr. Andrew Truax Veeder, aged seventy-one years. **Vrooman.**—In North Adams, Mass., on Saturday, January 4th, Dr. Henry J. Vrooman, aged fifty-nine years. **Welton.**—In Brooklyn, on Wednesday, January 8th, Dr. Robert Bradlee Welton, aged seventy years.

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NEW YORK, JANUARY 25, 1913.

WHOLE No. 1782.

Original Communications.

TUBERCULOSIS AND OTHER DISEASES IN SCHOOLS AND COLLEGES.*

*Open Air Schools and Open Air Instruction with
Breathing Exercises as Preventive Measures.*

BY S. ADOLPHUS KNOPF, M. D.,

New York,

Professor of Medicine, Department of Phthisiotherapy, Post-Graduate
Medical School and Hospital.

*Motto: If we wish to prevent tuberculosis in children
the open air school must become the rule, the indoor school
the exception.*

Among the many telling sentences in that brilliant presidential address of Professor William H. Welch, of Baltimore, delivered at last year's meeting of the National Tuberculosis Association, in Denver, there is one that reads as follows: "In the light of our newer knowledge there is abundant reason for the ever increasing emphasis placed upon the importance of attacking the problem of tuberculosis in the early years of life."

There is no question in the mind of any worker in the tuberculosis field that this portion of our tuberculosis crusade is indeed, not only the most important, but also the most difficult one to deal with. The five to ten per cent. of tuberculosis in childhood, which can be traced to the bovine type of the bacillus, would seem almost the easiest part to prevent. This could be done by the wise enactment and judicious enforcement of bovine laws, but in order to be effective, these laws as well as their enforcement must emanate from the force of our central government. Individual State laws are of little use as long as they differ from each other, are reasonably severe in one community and ridiculously slack in the next. Bovine laws must be enacted and enforced uniformly and this is only possible with the aid of a Federal department of health. With such laws, enforced by the supreme power of the United States government, it is my firm conviction that the bovine type of tuberculosis can be annihilated within a decade. I believe that the ten per cent. of deaths we now have from this form of tuberculosis in childhood can be prevented; that the economic loss accruing to a community because it has educated five per cent. of its children at the age from eight to fourteen years and then had them die from a preventable disease, can be saved; and last but not least, that the vain sacrifices made by

parents, the sorrow and agony they had to experience through the untimely loss of beloved children may be spared to them. Let those who still oppose the creation of a Federal department of health take this to heart and remember that by their opposition they must be held responsible for the untimely deaths of thousands of American children.

Although but a small percentage of tuberculosis due to the human type of bacillus can be traced to direct bacillary transmission via the placenta, we all know that postnatal infection from either parent, but particularly from the mother when tuberculous, is one of the most frequent causes of the disease in childhood.

It is not within the province of this essay to speak of the prophylactic measures and regulations which should prevent tuberculous procreation. I have very strongly expressed my views on this subject in other publications to which I must refer my readers.¹ I am here to-day to tell you what I believe might be done for the child who is tuberculous or is likely to become so by reason of a predisposition inherited or acquired, and last but not least, to tell you how we may strengthen the physique and mentality of the pupils.

It is very easy to say "take away the tuberculous child from its tuberculous parents, raise it in the best of hygienic environments, give it good food and plenty of air and you will overcome the tuberculous predisposition or cure the infected child."

That such a procedure can be inaugurated only in the smallest number of cases must be evident to all who have studied tuberculosis, not only from its medical, but also from its social aspect. In the majority of cases the separation of the child from the mother is out of the question. A beloved teacher of mine, the late Professor Grancher, of Paris, thought to solve the problem by placing the children of tuberculous parents residing in the city of Paris, in country homes as early as possible, having them there supervised by the local physician and returned to the parents when in his opinion the children had grown to be vigorous and strong enough to resist invasion of the bacilli. He called this work *Œuvre de préservation de l'enfance contre la tuberculose*. The work is still carried on by the widow of that great master and lover of children. That this work accomplishes a great deal of good there can be no doubt. The only question which there can be is whether it is not possible to accomplish a good deal

¹Primary Sources of Tuberculous Infection, Their Relation to Eugenics and the Cost of Tuberculosis, *NEW YORK MEDICAL JOURNAL*, June 29, 1912. Tuberculosis as a Disease of the Masses and How to Combat it, International Prize Essay, Seventh American Edition, New York, 1911. *Tuberculosis a Preventable and Curable Disease*. New York: Moffat, Yard & Co.

*Read before Section 3, Hygiene of Infancy and Childhood; School Hygiene, of the International Congress on Hygiene and Demography, Washington, D. C., September 26, 1912.

more by removing mother and child, or the entire family, into the more sanitary quarters of the city and teaching them all hygiene and outdoor life, and sending the children in time to open air kindergartens, open air schools, and open air colleges.

To place not only the child but the mother as well, in fact, the entire family, in hygienic environments, where they may breathe good air, have clean, well lighted rooms perhaps so arranged that outdoor sleeping is feasible, and where there is medical supervision, would seem far superior to the separation of child from mother. By this method the whole family would receive the benefit of preventive and curative care.

While the out of town districts would be ideal for such homes of tuberculous families, it seems that even a great city, when it has citizens public spirited enough to devote their fortunes to so laudable a purpose, may have such a home sanatorium. A beautiful example of a sanitary home or home sanatorium for tuberculous or predisposed families exists now in the city of New York at Seventy-eighth Street and John Jay Park. It is known as the East River Homes and was built by the generosity of Mrs. William K. Vanderbilt, Sr. Here, a number of families with members who are strongly predisposed to tuberculosis, or have recovered from the disease, receive the advantage of almost ideal homes with every room lighted and ventilated and with all modern sanitary improvements, for a most moderate sum. To give also to such families where the breadwinner is yet an invalid or not strong enough to support a family the advantage of such a home, the New York Association for Improving the Condition of the Poor has leased for three years an entire section of the East River Homes. This section consists of twenty-four apartments with a southeastern exposure. The trustees of the East River Homes have given the association entire control of the open stairway leading to these apartments and free access to, and partial control of the ideal roof garden. These families will be carefully supervised by physicians and nurses.

On top of the Vanderbilt houses are beautiful roof gardens which, I understand, will, as soon as possible, be used as open air schools. However, open air schools, open air kindergartens, and outdoor play facilities should be provided not only for the tuberculous and the tuberculously predisposed, but for all children, if we wish to combat tuberculosis as a disease of the masses. In the city of New York, for example, where, owing to the density of population and the topography of the island, playgrounds and small parks are necessarily limited, we have nevertheless thousands of acres of unoccupied, unused roofs which could easily be transformed into open air schools and playgrounds. We have made a beginning in New York, but our efforts have thus far been limited to the care of a very small number of tuberculous and anemic children.

We have at this time in New York city twelve open air classes connected with the public school system. According to the statistics kindly furnished me by Dr. Thomas S. Carrington, assistant secretary of our National Tuberculosis Association, the number of pupils attending these twelve public schools

is 526. The twelve open air schools in New York city are as follows: Seven fresh air classes, situated at Mott and Spring Streets, 57 West Forty-fourth Street, 272 East Tenth Street, Eldridge and Hester Streets (for boys), Eldridge and Hester Streets (for girls), West Twenty-eighth Street (for boys), West Twenty-eighth Street (for girls); four open air classes, situated at Bellevue Ferryboat, No. 2—Bellevue Ferryboat, Vanderbilt Clinic, ferryboat *Middletown*; one open air school on ferryboat *Susquehanna*, Brooklyn. Besides these classes of the public schools, the Horace Mann school established last year an open air class with forty pupils taken from the primary grades, and the Society for Ethical Culture announces that it will establish an open air school for sixty pupils of the fourth, fifth, and sixth grades, on September 25, 1912. This would give to New York City fourteen open air schools with a capacity for 626 children coming from all classes of society.

For the rest of the United States there are, according to the following statistics, also kindly furnished by Doctor Carrington, at this time in operation forty-one schools accommodating 1,229 pupils. To this must be added four summer schools, and for the coming year there are projected eight open air classes in the cities mentioned:

List of Open Air Schools in the United States.

City.	No. of schools and classes.	No. of pupils.
Monrovia, Cal.....	1	..
Oakland, Cal.....	1	25
Colorado Springs, Colo.....	(Not yet in operation)	..
Denver, Colo.....	(Not yet in operation)	..
Hartford, Conn.....	1	25
South Manchester, Conn.....	1	20
Washington, D. C.....	1	35
Chicago, Ill.....	Tuberculosis Institute School (three or four extra schools during summer months)	..
Chicago, Ill.....	6	250 ¹
New Orleans, La.....	2	160
Boston, Mass.....	5 class rooms	100
Cambridge, Mass.....	1	30
Grand Rapids, Mich.....	2	40 ¹
St. Paul, Minn.....	(Not yet in operation)	..
Montclair, N. J.....	1	21
Newark, N. J.....	1	30
Orange, N. J.....	2	43
Albany, N. Y.....	1	25
Buffalo, N. Y.....	1	26
Schenectady, N. Y.....	(Not yet in operation)	..
New York City.....	12	526
Rochester, N. Y.....	1	30
Syracuse, N. Y.....	(Not yet in operation)	..
Cincinnati, Ohio.....	2	40
Cincinnati, Ohio.....	1 open air room	35
Columbus, Ohio.....	(2 schools projected)	..
Hazleton, Pa.....	1	40
Mt. Airy, Pa.....	1	30
Philadelphia, Pa.....	3	75 ¹
Pittsburgh, Pa.....	2	75
Williamsport, Pa.....	(Not yet in operation)	..
Pawtucket, R. I.....	1	25
Providence, R. I.....	1	25
Kenosha, Wis.....	1	30

¹Approximate.

The results obtained in open air schools are well known to all who have been privileged to examine and watch the children. I could fill these pages with testimonials certain to make of anybody and everybody an enthusiast, but I shall quote only a few authoritative statements and not omit the more conservative ones. The latter are to my mind as significant as the former. Thus, in the *Medical Report on Outdoor Classes for Anemic Children for the Year 1911-12*, kindly furnished me by the courtesy of Mr. Mann, secretary of the Tuberculosis Committee of the Charity Organization Society, and Doctor Woodruff, the physician in attendance, the conclusions are as follows:

First. In the special outdoor classes for anemic children as at present conducted, subnormal children improve in mental and physical tone, in the iron content of their blood, and to a certain extent in nutrition.

Second. The improvement in nutrition and gain in weight may possibly be dependent to some extent on the food received in the school.

Third. The gain in hemoglobin bears no relation to the amount or character of the food given in the school, but is due in all likelihood to the effect of continuous life in the fresh air day after day.

Fourth. The effect of the outdoor class is not or may not be transitory.

Fifth. From the study of the "control classes" and the children discharged from the anemic class at Public School 21, it is likely that the environment of the ordinary class room has some deleterious effect, during the winter at least, which tends to produce an anemia.

An interesting statement concerning results for the first outdoor school in the United States, and more optimistic, was published in the *Journal of the Outdoor Life* for March, 1909, by Mr. Walter H. Small, at that time superintendent of the Providence schools. After describing the interest the general public had taken in this first open air school, he said: "The school enrollment is varying and the work is necessarily individual. Each does what he can; he is not urged; but he sits in the sun, keeps healthfully busy, drinks in fresh air, and grows stronger physically and more alert mentally. To see the color come into the cheeks and the sparkle into the eyes and to see the emaciated form fill out convinces those close to the work that it pays abundantly."

The result of the first outdoor school in Chicago is indeed surprising. It was kept open only one month. There was a gain of from one to seven pounds and, considering the general condition, Principal William E. Watt, of the Graham School, expressed himself as follows: "The children are delighted to breathe pure air all day in school and out. They are not compelled to stay in the room, but there are many more clamoring to get in. It has been a most successful experiment. Pupils have been cured of catarrh, swollen glands have been reduced to normal size, and tuberculous symptoms have disappeared. Their resistance to disease has been raised, and they are much more healthy."²

Because in New York city the open air schools connected with the public school system have been primarily intended for tuberculous or predisposed children, the following report of Professor Maxwell, superintendent of the city public schools for the year 1911, is highly instructive:

The city of New York has incorporated in its school system outdoor classes in the regular school buildings during the school year for anemic children, children predisposed to lung tuberculosis, and children with other organic troubles, such as heart disease. Secondly, tuberculous classes for children who are excluded from the regular schools because they are afflicted with open tuberculosis. The board of health excludes from the public schools all children afflicted with this type of tuberculosis.

In order to try the effect of the open air treatment on these children, the authorities of Bellevue Hospital assembled a number of them on a ferryboat. Here they were kept in the open air during the day, were fed and were under medical supervision. They slept at home. Not having anything to do all day the children tired and asked that a teacher be allowed them. Thus began the relation of the school system with classes of children excluded from it. There are now classes for

tuberculous children on four ferryboats, moored to docks on the East River front, and two classes on the roof of the Vanderbilt clinic. These classes are annexes to the following schools: Public School 12, Manhattan, Public School 14, Manhattan, Public School 37, Brooklyn, Public School 141, Manhattan, and Public School 151, Manhattan. Pupils to the number of 474 attended these annexes last year, and twenty-five per cent. of these were discharged as cured, or "disease arrested." Children to the number of 136 were returned to the regular schools and twelve went to work. In connection with the number 136, it must be noted that a child once excluded from the regular schools cannot be readmitted to such schools until the board of health gives it a clean record of health. In this 136 are also included some children who were excluded for observation and were returned as nontuberculous.

Some interesting facts in connection with these classes are the following: About two thirds of all the children admitted were taken from classes in the first four years of school life.

Four of the five schools report that 316 children gained in weight, thirty-four lost in weight, a few showed neither gain nor loss, and, in five cases the weight was not recorded. A girl of thirteen years made the greatest gain in weight, viz., thirty-eight pounds in nine months; among the boys twenty-two pounds was the record gain.

Among the children who gained in weight, the average for the girls is a little higher than that for the boys; among those who lost, the average for the girls is somewhat greater than that for the boys.

Ten degrees Fahrenheit was the lowest temperature recorded in any of the class rooms during the year. It was registered in the class room on the roof of the Vanderbilt clinic during the month of December. The lowest average temperature for the months of December, January, February, and March was 29° F.; it was registered on the ferryboat foot of East Ninetieth Street. The highest average temperature was recorded in Public School 37, Brooklyn, on the ferryboat *Susquehanna*.

About fifty-nine per cent. of the pupils admitted to these annexes had pulmonary tuberculosis in the first stage, about fifteen per cent. in the second stage, and about four per cent. in the third stage; the others had latent pulmonary tuberculosis, tuberculosis of the glands, or were held for observation because they were doubtful cases.

The teachers are told that the health of the child is the main consideration and that school work must be sacrificed to gain it. A child physically incapable of keeping up to grade unless it exerts itself more than its physical condition will permit is not allowed to make the effort. It is a pleasure, however, to report that the majority of the children hold their own while in these classes, and that some of them do better work than they did in the regular schools.

The equipment, cost of feeding, character of feeding, clothing, rest, recreation, medical supervision, etc., have been so often described³ that I will not enter into the consideration of these subjects here; suffice it to say that it pays in the end in health, happiness, and economic gain to take care

²L. P. Ayres: *Open Air Schools*. New York: Doubleday, Page & Co.

Adolf Baginsky: *Ueber Waldschulen und Walderholungsstätten. Zeitschrift für pädagogische Psychologie, Pathologie, und Hygiene*, viii, pp. 161-177, 1906.

Dr. P. H. Bryce: *Open Air Schools and Preventoria, Medical Review of Reviews*, August, 1909.

Dr. Thomas S. Carrington: *How to Build and Equip an Open Air School, The Survey*, April 23, 1910.

Ralph H. Crowley: *The Open Air Recovery School, Chapter XIV of The Hygiene of School Life*. London: Methuen & Co., 1910.

Dr. Cleveland Floyd: *Care of Phthisis in Children through the Outdoor School, American Journal of Public Hygiene*, pp. 747-751, November, 1909.

Dr. H. Grau: *Ergebnisse und Bedeutung der Waldschule, Centralblatt für allgemeine Gesundheitspflege*, 11-12, pp. 373-480, 1906.

Isabel F. Hyams and Dr. James Minot: *Boston's Outdoor School, Journal of Outdoor Life*, July, 1909.

Jeanne Morin: *An Open Air School in France, Wide World Magazine*, December, 1909.

Dr. Jay Perkins: *The Providence Fresh Air School, Outdoor Schools*, August, 1909, Boston Association for the Relief and Control of Tuberculosis (4 Joy street).

Mrs. Anna Garlin Spencer: *Open Air Schools, International Congress of Tuberculosis*, ii, pp. 612-618, 1908.

Frank E. Wing: *Report of Chicago's First Outdoor School and Its Results. The Chicago Tuberculosis Institute (158 Adams street)*, November, 1909.

³*Open Air Schools*, by L. P. Ayres, Ph.D.



FIG. 1.—Portable open air school at Jamaica Plain, Boston; particularly suitable for villages and smaller communities.

of these tuberculous and tuberculously predisposed children at the right time and in the right place.

The various other photographs of open air schools which we reproduce here (Figs 1, 2, and 3) are self explanatory.

To the various types of classes for outdoor instruction (outdoor classes in regular school buildings for the predisposed, outdoor schools for those afflicted with open tuberculosis, roof classes for as many even seemingly healthy pupils as possible), there should be obviously added that type of schools which are known in Germany as *Waldschulen*. This is particularly feasible in summer, but will be of inestimable benefit to the nervous, anemic, scrofulous, poorly nourished children, all of them strongly predisposed to tuberculosis.

A very near approach to the German *Waldschule* exists near Chicago, in the summer outing camp at Algonquin (Fig. 4). The buildings are furnished by the United Charities of Chicago and the Elizabeth McCormick Memorial Fund bears the expenses of operation. The building which we reproduce here costs about \$1,000, and includes, beside the portion which is shown in the photograph, two rooms which are enclosed, one used as a kitchen and one as a sitting room.

It should be the ambition of every city to possess a system of such *Waldschulen* or vacation schools. All these, types of

schools should be multiplied many fold. I go so far as to say that if we really mean to wipe out tuberculosis from among the coming generation, open air schools and open air instruction should be the rule, indoor schools and indoor instruction the exception. If it is true, as it has been stated, that the child handicapped by so serious a disease as tuberculosis, anemia, or scrofulosis, when instructed in the open air, not only holds its own, but often does better work than the healthy child raised and instructed indoors, what may we not hope from outdoor instruction given to the healthy child throughout its school career? And in school career I include a kindergarten course; this latter institution because, unless it is attached to a public school where the school physician is on guard, it rarely has medicinal inspection, is to my mind a fruit-guard, it rarely has medical infectious diseases. Most frequent

of these are the mysterious "colds" which the little ones bring home, and which upon investigation it is shown that all the children have. I am convinced that the open air kindergarten would not only do away with these so called colds (which are infectious), but also diminish the number of other infectious diseases to which children are so prone.

And now a word as to instruction in the open air in higher grades, that is to say, in high schools and colleges. I know, certainly, that there are a number of branches in the curriculum of the high schools and colleges which cannot be taught out-



FIG. 2.—Rest hour in an ordinary schoolroom transformed into an open air class.

doors or in an open air class, but many branches can, and I know from personal experience and from the reports of army surgeons in Germany that recitation and singing in the open air is very conducive to health, to the development of sound lungs, and a well formed chest. Thus, Barth, of Koeslin, Germany, made a careful study of the effects of singing on the action of the lungs and heart, on diseases of the heart, on the pulmonary circulation, on the blood, the vocal apparatus, the upper air passages, the ear, the general health, the development of the chest, on metabolism, and on the activity of the digestive organs, and has come to the conclusion that of all exercises singing is the most conducive to health. Considering the fact that it can be practised everywhere (where the air is pure), or at any time, without apparatus, it should be much more cultivated than it actually is. The German military authorities who have the reputation of instituting all exercises which tend to invigorate the soldiers, have always

encouraged singing during marches of all troops.

Botanical and geological excursions are, I believe, not nearly frequent enough in our public



FIG. 3.—Open air classroom on roof of school building.



FIG. 4.—Forest school pavilion at Camp Algonquin.

schools. From personal experience I know the inestimable value of such as far as physical development is concerned. Certain studies can, I believe, also be better pursued outdoors than indoors. The authorities of the Ethical Culture School, evidently realizing the benefit derived therefrom, make the following statement in their recent announcement of open air schools for children: "During the fall and spring, there will be frequent excursions to the outlying country for the purpose of securing country air and environment. These offer possibilities in the way of recreation, nature study, and concrete material for geography, arithmetic, and all school work."

Let instruction in the open air be carried out more universally in high schools for young men and women whenever feasible, as well as in primary schools, and I guarantee a stronger and better race physically within a decade with no intellectual impairment whatsoever. I go even so far as to venture the statement that, if giving the course of studying mostly in the open air renders it possible for the tuberculous child to accomplish as much and more in shorter hours and shorter sessions, the hours and sessions for the normal pupil of primary school, high school, and college may also be shortened by this hygienic mode of studying and teaching.

There is one feature in the management of the tuberculous school child in the open air schools which I firmly believe, if inaugurated more universally, would be of immeasurable benefit to the physical and mental vigor of the average pupil. I refer to the rest hour during which opportunity should be given to any child, if he feels mentally

or physically fatigued, to stretch out in the open air or special open air room designed for that purpose and take a half hour or little more rest, according to his or her needs. Children, unless they live very near to the school, should be enabled to purchase at cost price a substantial luncheon at school so as not to lose all of the time going to and coming from luncheon and besides being obliged to eat too hastily.

Although I am personally opposed to home lessons for children attending primary grades, older children will, of necessity, have to study at home sometimes. After having spent all day in the open air, they will dislike to be shut up for home study. For these children I recommend that an open air study room be arranged at home by the utilization of some portion of the roof or porch. If the parents do not own the house or the landlord is not gracious enough to give permission for the utilization of either roof or porch for that purpose, I suggest the following device: In front of the ordinary American window, raised from below as far as possible, place the work table for the child. In winter he sits in front of it, warmly wrapped up, on a comfortable chair, to do his lessons. Around him, enclosing table and window, is placed a large folding screen, or canvas¹ covered frame, with another piece to form a top, as high as the window will open. This will form a tiny room in front of the window for an outdoor study. The centre of the screen should contain a celluloid window so as not to take too much light from the room and also for the purpose of watching the child. By this arrangement the rest of the room will

neither be rendered too cold nor too dark for the other members of the family. With outside shutters, which can be closed in stormy weather or at night, studying in the open air can be carried on day or evening and in all kinds of weather.

Professor Van Pelt has kindly made a very artistic drawing for me, which shows in Fig. 5 how such a device may be conveniently installed in almost any apartment and with relatively little expense. The dimensions of this device are about four feet six inches deep, three feet six inches to four feet wide, and six feet two inches high. An excessive height in the tent would not be good, as it would cut out the light and air that should come in above the tent for the rest of the room. As it is shown in this drawing the device will not only serve as an open air study during the day, but it can very advantageously be used as a typical window tent for the purpose of sleeping in the open at night. I have used such tents most advantageously for years for tu-

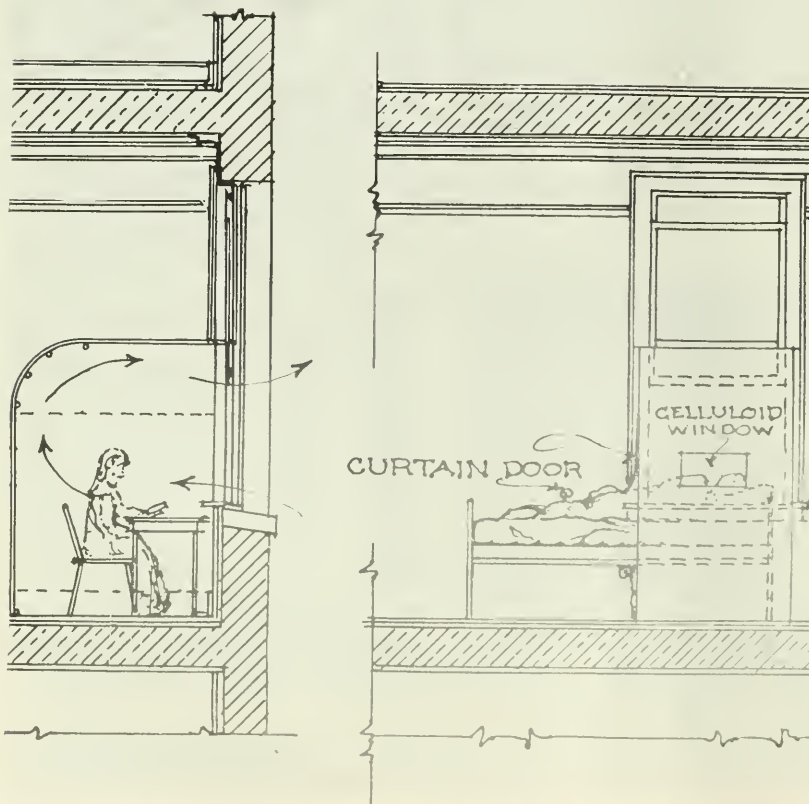


FIG. 5. Window tent for studying and sleeping in the open air, designed by Professor Van Pelt.

¹Canvas or heavy muslin should be used for the tent, and the material should be of the numerous well known commercial processes.

berculous and predisposed individuals. The flap which gives entrance to the tent might slide up between two pieces of canvas so that it could drop on the bed without unnecessary weight and at the same time be held in such a way as to prevent the air from blowing through.

This arrangement is primarily intended for use in winter; it would hardly be necessary in warm weather.

And now, as to the value of the breathing exercises which I should like to see incorporated in the curriculum of every school, from kindergarten to university, to be performed at recess and graded according to the age, intelligence, and strength of the pupil:

I have often taken the measurement of children of tuberculous parents and of others who were brought to me because of their undeveloped physique. After a few months of exercises they almost invariably improved more in general health and grew correspondingly stronger than they had before taking the exercises. It has also been my privilege to teach respiratory exercises to physicians and students with gratifying results. The first time I published a system of respiratory exercises which I had worked out was in my doctor's thesis *Les Sanatoria, traitement et prophylaxie de la Phtisie pulmonaire*, which I defended before the Faculty of Medicine in Paris in 1895. I published them later in my textbook, *Pulmonary Tuberculosis, Its Modern Prophylaxis and the Treatment in Special Institutions and at Home*, and reproduced them in my International Prize Essay *Tuberculosis as a Disease of the Masses and How to Combat it*. I have had the good fortune to have seen the latter printed in twenty-seven different countries and twenty-four different languages.

Such or similar exercises are now, I believe, practised and taught by a goodly number of physicians engaged in the work of the prevention of tuberculosis. In Paris, such exercises have been adopted in some of the public schools. Doctor Marage, of that city, recently published some interesting statistics showing the results of having breathing exercises practised by a number of pupils several times every day for a period of six months. The experiments were made at the communal boys' school in the rue Gambon under the control of Professor Meunier, Madame Meunier, and a number of teachers. It was observed that the children learned the exercises easily and performed them with pleasure. There were fewer absences from school during the six months of experiments than during the other part of the year. The results were universally good, especially in sickly children.

The following is a table showing the gain of height, chest capacity, and vital capacity

Results of Series of Experiments on Children by Doctor Marage.

Age	Height in centimetres		Chest girth in centimetres		Vital capacity in litres and centilitres			Number of pupils
	Begin-	Sixth	Begin-	Sixth	Begin-	First	Sixth	
	ning	month	ning	month	ning	month	month	
6.....	115	118	51	53	0.54	0.78	0.85	19
7.....	125	125	52	55	0.66	0.80	0.93	14
8.....	124	126	53	56	0.70	0.86	1.13	27
9.....	130	132	55	59	0.80	1.00	1.17	20
10.....	141	143	59	62	1.20	1.36	1.51	28
11.....	138	142	58	62	1.05	1.31	1.70	18
12.....	145	149	59	63	1.47	1.67	1.95	22
13.....	148	151	70	74	1.93	2.26	2.26	16
14.....	147	153	62	66	1.83	1.92	2.15	7

Encouraged by the results obtained by myself and others from these respiratory exercises, I have taken up their study anew and added a few more as particularly suitable for children. The teacher should strive to have his pupils learn to love these exercises as the average boy or girl loves general gymnastics. The following is as concise a description as can be given to enable one to teach them:

To begin with, the pupil has to learn to stand straight, assuming the position of the military attention, heels together, body erect, and hands on the sides. With the mouth closed, he takes a deep inhalation (that is, breathes in all the air possible), and while doing so raises the arms to a horizontal position (Fig. 6), remains thus, holding the air inhaled for four or five seconds, and while exhaling (breathing out) brings the arms down to the original position. The act of exhalation, or the expiration, should be a little more rapid than the act of inspiration.

The act of inhalation occupies about four, the act of exhalation about three seconds, and as has already been said, the act of retention of the air about five seconds. The child should be taught to count mentally during these three acts so as to be systematic about holding the air. One can move the hands up and down twice, counting four, and

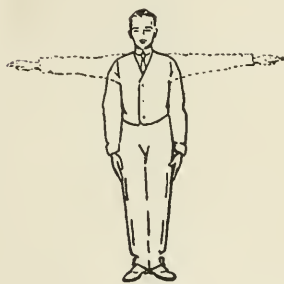


FIG. 6.—Respiratory exercise A. FIG. 7.—Respiratory exercise B.

on the fifth second begin to lower the arms and exhale.

When the first exercise (A) is thoroughly mastered, one may commence with the second exercise (B). The pupil places the hands one above the other, in front of the chest, with the fingers bent (Fig. 7). The arms and shoulders make a backward movement, the hands moving apart with a motion as though wanting to tear open the chest (the fingers remaining bent), while he takes a deep inhalation, holds the breath, counting four by tapping the chest four times with both hands, and at the fifth second he starts to exhale, bringing the hands and forearms into the position from which they started. This exercise has the advantage that it can be taken in the sitting position, or even when lying on the back.

The third exercise (C) consists in raising the arms from the sides to the horizontal and then above the head (Fig. 8), taking a deep inhalation during this act; then bending back as far as one can and remaining in that position four seconds while retaining the air, counting the seconds by moving the hands alternately, forward and backward, and on the fifth second one exhales gradually while resuming the original position. During

this exercise it should be borne in mind that when the arms are raised until the hands join, one should not bring the arms close to the head, but rather form a circle above the head by bending the arms outward enough so that the meeting of the index fingers and thumbs form a triangle.

The fourth exercise (D) is for the purpose of bringing the abdominal muscles also into play, or, in other words, combining abdominal and chest breathing. To this end one assumes an erect position, like the beginning of all the exercises, the hands meeting in front, with the little fingers and the edge of the palms touching the abdominal muscles (Fig. 9). While taking a deep inspiration, raise the diaphragm, concentrating all attention on this act, and while doing so move the joined hands upward, sliding them along the thorax up to the chin, then turn them and continue to raise them until they are above the head, as in exercise C, Fig. 8. Remain bent backward during the four seconds while retaining the air, and then exhale, lowering the arms gradually to the horizontal and to the original position of "attention."

The fifth breathing or respiratory exercise (E), which may also be called a dry swim, requires more strength and endurance. It should not be under-



FIG. 8.—Respiratory exercise C. FIG. 9.—Respiratory exercise D.

taken until the others have been practised regularly several times a day for a few weeks, and until an evident improvement in breathing and general well being has been observed. One takes the usual military position of "attention" and then stretches the arms out as if in the act of swimming (Fig. 10), the backs of the hands touching each other. During the inspiration one moves the arms outward until they finally meet behind the back, remains in this position for the usual four seconds, counting by moving the hands while retaining the air, and on the fifth second exhales, bringing the arms forward again ready to start for another swim; or if this is the end of the dry swim, the arms return to the original position of "attention." This somewhat difficult exercise can be facilitated and be made more effective by rising on the toes during the act of inspiration, and descending during the act of expiration.

It will be seen that with the aid of these five respiratory exercises every muscle of the body, from the nostrils down to the toes, is put into play. The face alone is at rest and can serve as an indicator that the exercises are properly done: for it must be borne in mind that they should be taken with the muscles not actually in use, relaxed, and all

unnecessary contraction of muscles or tremorlike movements must be avoided.

Of course, when out of doors, one cannot always take these exercises with the movements of the arms without attracting attention. Under such conditions one assumes a position similar to "at-



FIG. 10.—Respiratory exercise E.

FIG. 11.—Respiratory exercise F.

tention," raises the shoulders, making a rotary backward movement during the act of inhaling (Fig. 11); remains in this position, holding the breath for four seconds, and then exhales while moving the shoulders forward and downward, assuming again the normal position. This exercise (F) can be easily taken while walking, sitting, or riding in the open air.

Young girls and boys, especially those who are predisposed to consumption, often acquire a habit of stooping. To overcome this, the following exercise (G) is to be recommended: The child makes his best effort to stand straight, places his hands on his hips with the thumbs in front, and then bends slowly backward as far as he can during the act of inhaling (Fig. 12). He remains in this position from four to five seconds while holding the breath, and then rises again somewhat more rapidly during the act of exhalation, assuming the original position with hands on hips.

The following general rule concerning breathing exercises should always be remembered: Commence with the easier exercises (A), and do not go on to the more difficult ones until the former are completely mastered. Take from four to six respi-



FIG. 12.—Respiratory exercise G.

ratory exercises (one of A, one of B, one of C, one of D, or one of E), or when outdoors simply exercise F, four to six times every half hour or hour, and on rising in the morning and retiring at night. Continue this practice until deep breathing has become a natural habit.

These exercises are not intended for children who are already tuberculous, and they should be taught gradually and according to the strength, development, and understanding of the child. I believe them to be of incalculable benefit as a means of helping a child to overcome a tuberculous predisposition; but they are not indicated in all cases. They can do harm if the child is very delicate and not judiciously advised and guided in the gradual development of its physique as a whole. They will

never be harmful to the healthy child unless grossly overdone. Children, as a rule, take kindly to these exercises, and their love for fresh, pure air, and distaste for foul air become very strongly developed. There should be no fear that in so called flat chested children these exercises can do harm. It is in these very cases that breathing exercises are indicated, for it must be remembered that in young children the bony structure yields to the pressure exercised from within. Thus, with the aid of such respiratory exercises a flat or hollow chested child can develop into a strong, broad chested man or woman.

I hope what I have said in the foregoing may have helped to convince the pedagogues, the physicians, parents, and the general public what open air schools, instruction in the open air, and breathing exercises could do for our children and what immeasurable benefit in sanitary, intellectual, moral, and even financial gain would accrue to the nation.

According to our constitution, every individual community has to take care of the education of its children, and the wealth, the number of children, and the density of population in general is unequally distributed. As a result, many communities, poor in resources, but rich in children, cannot offer to their future generations the facilities for getting that mental, physical, and moral development to which they are entitled by reason of being the children of a great, free, and rich country.

What a field for doing good presents itself here before our wealthy, well meaning fellow citizens! To help the poor communities to have ideal schools with ideal open air classes, to provide poor and undernourished children with nutritious food, to help the poor communities to attach to every one of these schools a physician and social worker, the latter to work with a view to aid the truly needy and to prevent pauperization, would bestow a blessing upon future generations the magnitude of which is beyond calculation.

According to the report of the commissioner of education, there are at this time about 20,000,000 children attending public schools in the United States. Placing the proportion of tuberculosis among them only as low as three per cent., would make 600,000 tuberculous children who are at this time in urgent need of open air instruction. According to the above mentioned statistics we have provided at this time instruction in open air classes for 1,755 tuberculous children. The anemic, the nervous, the children suffering from cardiac diseases, who are in equally great need of outdoor instruction, are not included in the three per cent.

Many of these children who are not properly treated because of nonrecognition of their disease, or lack of facilities to treat and cure them, must die during school life, but not before they have cost the community and their parents thousands and thousands of dollars for education and maintenance. In a paper recently read before the New York State Medical Society, entitled *Primary Sources of Tuberculous Infection. Their Relation to Eugenics, and the Cost of Tuberculosis*,⁵ I estimated the average duration of the life of the 50,000 children who die annually from tuberculosis in the United States

as about seven and one half years, and figuring the cost to parents and community for each life at only \$200 per annum, the financial loss thus represented is \$75,000,000; and these children have died before they have been able to give any return to their parents and the community. What a useless sacrifice of life and of money! What a useless cause of sorrow and heartaches to parents! And all because we do not take care of the child at the right time and do not educate it in the right place. How much is there to do and how little is as yet done!

10 WEST NINETY-FIFTH STREET.

SEX ETHICS; A MEDICAL ORIENTATION.

By W. B. KONKLE, M. D.,
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The distance between Tiberius and Marcus Aurelius, between Caprea's ill famed villa and the military tent of the emperor-philosopher, is the distance which separates crass sensuality and sublimed ideality. To a corresponding extent the appearances of things will differ as seen respectively by the scarlet rays of the former or the argent beams of the latter. Viewpoint, as related mutually to these antithetic principles, largely determines opinions and estimates in the moral realm. Within the department of sexual morality is this rule most strikingly exemplified and verified. Narrowing the field yet again, it will be found that the same rule strictly applies to medical attitudes in questions of sex ethics. From the sensual standpoint sight is purblind and limited to low levels. A most regrettable fact is it that occasionally a physician does assume this position. And then we have presented to us free love, fornication, adultery, marriage bonds farcically lax and frail, all these things and more, as proper and efficacious remedial agents for the sufferings and inconveniences of sexual derangements. What a glorious armamentarium! And in the background lurks the foul, leprous body of female prostitution. And we hear of grotesque Utopias founded on decadency, perversion, and infirmity. And we face the lamentable spectacle of gross, all carnal hands by ill directed effort, dragging our dear old world still deeper into the mire, the while noble, devoted men and women lift and tug at it to clear it of its filth and to bring it to the feet of God.

The physician's attitude is bound to be that of devotion to the welfare and comfort of his patient. A champion is he, defending with shield and sword his client. And this is most praiseworthy. Such loyalty is the precept and rule of medicine. Example upon example of it might claim its Thorwaldsen and its Lion of Lucerne. But while our aim may be true, our missiles sometimes go wild beyond the mark. Mercy and beneficence toward the weak and unfit we are prone to push to the ultra limit of survival and perpetuation of the weak and unfit—to heal the individual to the wounding of the race. It is problematic just what measure of wrongdoing will be charged up to us for thus thrusting Nature aside, and only half filling her place—nullifying her laws without safeguarding

⁵NEW YORK MEDICAL JOURNAL, June 29, 1912.

her ends. Yet, howsoever we may differ as to some phases of the question, surely it cannot be maintained that we should serve our patients to the immediate, direct hurt of others. Fair and good is fidelity to interests we hold in trust. But certainly there can be neither obligation nor right to cure or relieve a sufferer by bringing harm to one or to many. We have no right to heal, satisfy, or gratify a man with a congested and prurient posterior urethra by degrading womanhood, demoralizing society, and stigmatizing our kind. Rather than do that, let the man be distressed and obsessed forever.

We must zealously protect our females—as knightly men we *must* do that. Women and children first, is Nature's highest, holiest law. To that law strong, brave men reverently bend on land and sea. The world cherishes as a proud heritage the memory of the heroes of the *Titanic*. And yet the Minotaur of male lust exacts yearly a staggering tribute of maidens. These powerful lines of Emma Lazarus written of Rome may be ascribed to this fell monster—

The blood of myriad provinces is drained
To feed that fierce, insatiable red heart.

Would that our guild might be the Theseus of the hour! But at all events, oh! may medicine in no way lend itself to the consignment of girls to the black sailed ships!

The medical specialist is all the time seeing the worst things in his line. For this reason he is liable to acquire an exaggerated impression of the numerical and influential ratio of deformity. The specialist in sexual disorders might be led to suggest a constitution of society that could find potential requirement and application as to but a small fraction of the mass of people. He, however, would have to admit the theoretic superiority and desirability of inviolate monogamic marriage, and acknowledge its not rare realization. The family physician, especially the country doctor, would generally assert a much greater, perhaps a prevailing, frequency of such marriages. Goethe likened society to his glass of beer; the froth on top, the dregs at the bottom, the substantial and wholesome product in the middle. Plain, common folks outnumber and outweigh all other classes. And this great middle class is sound and sane—in morals as in thought and affairs. Upon its good sense and conscience, as upon two bases of granite, society securely rests. A highly compensating fortune of the general practitioner is his intimate contact with the average family—it is a joy and an inspiration. Religious doubter that he was, Ricord had conspicuously hung in his bedroom a Madonna, that after the day passed in scrutiny of venereal disease he might before sleeping look upon a picture of purity. The family doctor cannot altogether share such a sentiment; pictures of domestic virtue, devotion, and confidence are daily before his eyes. His is the privilege of unrestrained access to a sanctuary—the simple home—home, that consecrated spot, more dear by far than any other, where fondest affections are enshrined, where, under the enchantment wrought upon the scene by the rapturously breathed names of loved ones, the world's storms are quelled and Eden blooms again beneath the sun glow and azure of skies serene. The homes of

earth are its sweetening, saving salt. Still, with due deference for the truth it cannot be said that all of the exemplary family men found in model homes were, during the gusty days of their young buckhood, invariably found reading their Bibles at the parental fireside by ten o'clock o' nights. Light and leading earnestly, faithfully brought to bear upon this peril beset period of life will result in a better showing.

What broadly varies from the normal is abnormal. What essentially departs from the physiological is pathological. If a man's sexual makeup is glaringly unlike that of the typical man he is not specially developed, or overdeveloped, within normal lines; he is abnormally developed, and his condition is pathological. Even the so called powerful sexuality is the sign of weakness rather than of strength. The conception of such a case as involving superior potency is allied to the conceit of the man who proudly exhibited his chest as a paragon of development, when in fact the poor fellow was pigeon breasted to the degree of pitiable deformity. Markedly prominent sexual abnormality implies either sickness or degeneracy. Tangible pathological processes and alterations in the sexual structures will explain many cases. In others the cause is inscrutably hidden within the nervous system. Environment impressing itself upon character and habit will be the key in other instances. In still others the faults must be attributed to heredity. Heredity has no altar of atonement. With reference to the moral fibre of one of England's greatest poetic geniuses, a critic has said, "What would you expect in a man begotten by a satyr and born of a fury?" Very pertinent to the point is Dr. Frederick Peterson's beautiful poem, *Heredity*. It portrays "a ladye fayre." Here are some of the verses—

But I, who meet her oft about
The woods in morning song,
I see behind her far stretch out
A ghostly throng—
A priest, a prince, a lord, a maid,
Faces of grief and sin,
A high born lady and a jade,
A harlequin—
Two lines of ghosts in masquerade,
Who push her where they will,
As if it were the wind that swayed
A daffodil.

But whether departure from the type proceeds from disease, environment, or heredity, still is the sexually abnormal man infirm or imperfect. Now to seek relief and control of pathological cravings by abetting them and pandering to them is neither good science nor good practice. If a patient has a tormenting bulimia we urge moderation, self restraint, the while we try to bring about his cure. We do *not* advise him to provide for himself at dinner three plates and services. Especially do we not attempt to help matters by suggesting a raid upon his neighbor's larder, or by extensive and indiscriminate plunder. The pervert and maniac with imperious impulses we hold in check. Little warrant can there be for licensing a flatteringly free rein in the case of those, to only a less extent, sexually abnormal. Let us look upon these people charitably and sympathetically, but not indulgently. Let us look upon them with the physician's eye, not

with the eye of the compliant time server, whose easy counsel would make the sick man the slave of his symptoms. While doing for them our best in the way of treatment and management, let us help them to mount to the moral level of the sentiment embodied in these lines of the greatest of the laureates—

Arise and fly
The reeling Faun, the sensual feast;
Move upward, working out the beast,
And let the ape and tiger die.

Now and then a physician, arguing from the standpoint of sensualism, will assert that irregular and merely animal sexual relationships can be made to conduce to human happiness. It may readily be conceded that human happiness is the proper mark and gauge of all human endeavor. But the terms of the phrase will require definition. Happiness must comprehend the higher self, the higher welfare, the higher life, and must not be confined to the low plane and the restricted bounds of mere animal pleasure and content. Human must not be taken to mean individual or any group of individuals. The word must include all mankind, existing and to come. Humanity is a flowing river. Personal enjoyment of whatsoever character that works harm and misery to others, now or in the future, is not human happiness. A keen, clear thinker has said that "for this country to be good enough for any of us to live in, it must be good enough for all of us to live in." The sentiment may be made strictly catholic. That the world may be an ideal place for anybody, it must be an ideal place for everybody, everywhere and always. Human happiness is co-extensive with humanity.

Sensualism in medicine has averred that the best operation of genius is in some instances conditioned upon free and irregular gratification of sexual passion. That creative genius has occasionally been tainted by sexual abnormality is well known.

'Tis true, 'tis pity
And pity 'tis 'tis true.

"*Es ist von manchem hohen Baum die Wurzel faul,*" is a maxim of the *Vaterland*. But it is altogether reasonable that in these exceptional cases the unusual mentality exists in spite of the defective makeup rather than on account of it. And it is hard to believe that the gratification of abnormal impulse could enhance the worth of the work of either talent or genius.

And now we come to idealism in its application to sexual morality. And at once we bare and bow our heads; for the ground on which we tread is holy. On this ground of the ideal have taken their stand earth's heroes and martyrs in imposing numbers. Here have stood in saintly array the lovers and benefactors of their kind. The possible weakness of idealism is not a blemish—it is a simple error. Idealism is prone to be hypermetropic—is liable in the far off vision to overlook the present pressing need. So in the domain of sex ethics what we *would* do must wait upon what we *can* do. Idealized theories of sexual morality as abstractions are admirable. To saddle them upon people, as people yet are, "aye, there's the rub." An attempt to do so sunnarily would probably occasion as much

plunging and kicking as does bronco busting. Too much dare not be exacted all at once.

The vow that binds too strictly snaps itself.

For still quite a little while perhaps it were best to concentrate effort on keeping men at home. Just how they ought to deport themselves there is a matter that advantageously may be largely postponed for later consideration. At all events, it is an open question, and a delicate one, how far sentiment, emotion, impulse, passion itself, should be eliminated from, and how far permitted in the union of the sexes. We do not fully know to what extent we can, or should, or shall ultimately govern the reproduction of the race by stern reason, staid philosophy, hard science. Unless care is exercised the whole field will be made as bleak and cold and dead as the moon. Woe the day when is slain the boy god who makes the world go round!

The desirable is easier of discernment than of attainment. With less difficulty can one conceive the ideal than grasp the practical. The true, the trustworthy reformer is he who sees the final goal, the ideal, who lays his course by and toward it, but who does not try to reach it at a leap.

Evolution is the keynote which sounds through the whole of space. Its method has been, is, and likely will be a point of contention; but the principle is well established. Things grow; are not the product of fiat or spontaneity. Minerva springing from the brow of Jove, full statured and completely armed, is a beautiful myth; but the conception is visionary, and not in accord with Nature's plans and efforts—does not harmonize with the supreme law of the universe. It is unwise, unscientific to adopt revolution as a means of progress. There is no revolution strictly speaking. So called revolution is only evolution dammed back. And here is a truth for both the overconservative and over-radical. The logical deduction is, keep moving, but move temperately and cautiously.

Regarding sexual morality specifically, it is an error not to largely take development into account. On the other hand it is also an error not to calculate upon sufficient time for such development to pass through its consecutive stages. These two contingencies are strongly improbable—first, that moral evolution, having been evident in history up to the present, will stop short now; second, that progress, having been almost imperceptibly gradual in the past, will henceforth proceed by bounds.

The world has steadily been growing better—is better to-day than ever before. This is simply a question of record. The abominations of Egypt, the debaucheries of Babylon, the horrors of Phœnicia, the shames of Greece, the crimes of Rome, the vices of the Middle Ages, these have fled the light, and hid in the haunts of the bats and the moles. The promise of the future is not so much in itself as in the past. The backward look braces and reassures the forward look. If regret and repining and dejection come, as we apprehend how far off is yet the perfect day, so will come exultation and encouragement and enthusiasm as we survey the days of utter darkness from which we have emerged.

During the entire journey through the wilderness humanity must not disdain to use a tabernacle

which may be moved. The stable temple is for Zion's heights. Evolution shatters conventions—the evolutionist is superior to precedent. An onward step is censure and repudiation of the old position. But progress is slow—it is to be measured, not by years, but by ages. Cato advised for what paltry sum they might bring the sale alike of old chariots, old oxen, and old slaves; and not till the lapse thereafter of two millenniums did France's lifeblood buy for mankind the right to speak the three words, liberty, equality, fraternity. Sarah called Abraham lord; and the antiquated order of lords of creation has not even yet yielded up its charters. The Greeks, though they had reared an altar to pity, on occasion did not scruple to slaughter their vanquished foes. Rome fed her captive beasts of prey with her captive men and women. Only three centuries ago Tilly boasted to his imperial master that Magdeburg's doom had not been matched since the destruction of Troy and Jerusalem.

Yes, the march of morals is slow; and sexual morality constitutes no exception. We do not know where down the course of time love will extinguish lust, and solicitude for, and devotion to the interests of posterity will supplant tyrannous impulse toward self gratification. We do know, however, that many fields of labor are involved in the working out of the problem, and that much must be done in each of them. The eugenist must look to the improvement of the human stock. The pediatricist must see that childhood and youth are not impaired or vitiated. The andrologist must be not simply a specialist in venereal diseases—he must do for man what the gynecologist is doing for woman. The sanitarian must make earth and its abodes harmless and healthful. The sociologist must get things so adjusted that there will be peace and content and concord in the human hive. The theologian has a most important part to play. He must keep God in the thought of men as the One who dictates duty and creates responsibility. The God idea lost and all is lost. Atheism is the blight of blights and the bane of banes. Its fruit is the apples of Sodom. Its only gospel is the mocking, maddening gospel of egoism, corruption, and despair.

And thus this problem of sexual morality reveals itself as a superlatively complex and knotty one. No one generation can solve it. But deliver your stroke, and trust the Oversoul. The solution will be accomplished albeit onflowing ages mark the stages of the process.

And so these twain, upon the skirts of Time,
Sit side by side, full-summ'd in all their powers,
Dispensing harvest, sowing the To-be,
Self reverent each and reverencing each.

VALUE OF PERTUSSIS VACCINE.

BY GEORGE DOW SCOTT, A. B., B. S., M. D.,
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Pertussis is, in infants and in young children, a dangerous disease. Fifty per cent. of all cases occur within the first two years. It is highly con-

tagious, the infecting areas being the nose and mouth, and is probably due to a microorganism, a coccobacillus discovered by Bordet and Gengon in 1905. Bordet injected twenty children with his pertussis vaccine in whom developed a severe negative phase of the disease. This bacillus stains with weak solutions of fuchsin, is Gram negative, and grows with difficulty in ordinary media, but more easily on humanized media. Through injection of this bacillus Klimenco and Fraenkel were able to produce seemingly typical conditions in monkeys. Inabo, quite recently, experimented with the vaccine in an ape and produced typical whooping cough. The bacillus used was found in seventy-eight of eighty-one cases and was cultivated in sixty-eight of seventy-seven cases. In eighteen cases of other respiratory diseases the organism was not found. This coccobacillus is found in the early part of the disease and in the expectoration which comes from the region where the bacilli are most active, namely, from the depths of the bronchi, where they are thrown out during a paroxysm. This exudate contains the true bacillus in considerable numbers and in favorable cases gives an almost pure culture. As the disease progresses, fewer and fewer bacilli are found.

Bordet and Gengou describe the bacillus of pertussis as a little ovoid bacillus, somewhat elongated at times, but frequently so short as to resemble micrococcus. The principal argument in favor of this organism appears to be furnished by a study of the specific properties of the serum. The serum of the individuals who have never had whooping cough, or who have had it a long time before, does not agglutinate the bacillus even in low dilutions. The sera of children who have recently recovered from the disease have a moderate agglutinating property which is constant. The most remarkable fact, moreover, is the intensity of sensitizing property in such sera. Bordet calls attention to the fact that a necrosing influence may be observed on the surface of the bronchi of affected children, and believes that the manifestations of the disease arise from lesions of the cellular lining of the bronchi resulting from the action of the irritant poison. Ladd, of Boston, prepares the pertussis vaccine in the following manner:

The organisms are grown on blood agar in the incubator for twenty-four hours. The growth is then washed off with sterile physiological salt solution, and a bacterial count is made to determine the number of organisms per c. c. The blood cell method of Wright is best used. This consists of taking drops of equal size of the blood of a normal individual and of the emulsion under consideration. The mixture is then examined under a microscope in exactly the same manner as in making a blood count, and by estimating the number of bacteria present in proportion to the number of red blood cells and having determined the erythrocyte count of the patient, by a previous examination of the blood, one can accurately compute the number of bacteria present per c. c. After having made a count, the organisms are killed by heating in a water bath at a temperature of 60° C. for one hour, and the emulsion is diluted with physiological salt solution to the desired bacterial content per c. c. Bacterial tests are then conducted, plants being made upon the various culture media under both aerobic and anaerobic conditions. Safety tests are also made by injecting the vaccine subcutaneously into guineapigs.

Blood counts showing the relative increase in mononuclear cells plus the typical paroxysm make the diagnosis practically certain.

Ladd reports no ill effects from its use; beginning with twenty million he gave forty million bacteria at a dose. His cases number nine, ranging from seven weeks to six years. The duration of the cough ranged from one to eight weeks before beginning treatment, the number of injections from three to eight, and the amount of vaccine given from thirty-seven million to 170 million *in toto*. In the eight cases the blood count showed a white count, ranging from 7,000 to 41,200; a count of polynuclears from sixteen to fifty-five; of mononuclears from forty-five to eighty-three; of mast cells from one to two, and of eosinophiles from 0.5 to three. These results show that a moderate to pronounced leucocytosis is present.

Doctor Graham's cases received twenty million bacteria every four days. No contraindications were noticed and the dose was increased to forty million bacteria every four days. This latter dose was afterward given every three days with great benefit. The number of paroxysms became less, their severity diminished, cyanosis was less marked, and the vomiting became less and less. The number of injections varied from six to eight of forty million bacteria. Doctor Saunders, Dr. Johnson White, and Doctor Zahorsky, of St. Louis, began treatment by using doses of five million bacteria, but ended in giving doses of twenty-five million. Their doses were repeated twice at intervals of one week. As a prophylactic they used the vaccine in fourteen cases which had been exposed, but in which the disease had not developed, not even a cough. In a case of doubted diagnosis, the leucocyte and differential blood count may help.

Doctor Graham reports twenty-four cases, ranging from six months to eight years. Doctor Saunders, Doctor White, etc., reported forty cases, varying from three months to nine years. My own cases ranged from five months to eight years. Of Doctor Graham's reported cases, seven were probably not benefited by the treatment.

After eighteen months' work my patients now number seventeen. They are of poor, ill nurtured, and badly developed infants and children for the most part. Pertussic vaccine is not a panacea in all whooping cough cases. In the few cases, my own number three, where the disease was not cured the symptoms were distinctly mollified, the back of the disease was broken. The number of attacks became less, their severity was diminished, cyanosis was less marked, or vomiting during the paroxysms disappeared. The children slept better and the attacks at night became less.

In not one of my cases was there any reaction from the vaccine, no abscess, nor any swelling or redness at the site of the puncture, nor were joint, muscular, or constitutional symptoms noticed. I choose the buttocks as site for injection—our little patients cannot see the syringe if they are properly held, the circulation is more sluggish, and absorption takes longer, I know, but the nerve endings are fewer and seemingly less sensitive. Owing to slow absorption evil consequences may be lessened.

Possibly during severe epidemics the vaccine may not be useful, as Graham points out. We must wait. I wish to sound a note of warning, not to use the vaccine unless in cases of undoubted

whooping cough. Physicians in all cases of cough should not rely upon the attendant of the child as to a whoop, but should examine the lungs, larynx, pharynx, and epipharynx for a possible cause. Acute bronchitis, for instance, may precede, be present with, or follow an attack of whooping cough. At each visit, therefore, the patient should be thoroughly examined before the treatment. Experience seems to confirm that stronger doses of vaccine should be given in the early stages of the disease; also that infants require less strong doses, less number of doses, and longer intervals between doses than do children. The younger the infant the quicker the cure is my experience. Owing to my inexperience, I began at first, giving doses of ten million to infants, and twenty million to children at intervals of twice a week, or in severe cases in older children three times a week for one week only. I now begin with forty million bacteria, even to an infant, and give another dose in proportion to the effects since the last dose. If much benefit arises I prolong the intervals, if less or no benefit I shorten them. Many of my cases improved after one dose. An infant of five months was cured, others were improved after the second, third, or fourth. A dose of forty million given in severe cases at short intervals, I believe to be better than larger single doses.

Before beginning the treatment I make sure of a paroxysm. No aborted or false cases were in the list treated. Many patients were in great agony on beginning the vaccine. In the future I want every physician to have six vaccine vials of twenty million each as a part equipment in his office, for in families in which whooping cough develops among the members, a prophylactic dose of forty million once or twice may ward off trouble. I am reporting in full only two of my seventeen cases, one a great success, the other a partial failure. In no instance was the vaccine wholly a failure, for in the three cases where the children were not greatly benefited, either the severity of the paroxysms was eased or their number lessened. In one family I injected three children whose ages ranged from two to six years, with excellent results. The two year old received eighty million in all, the next 120 million, and the third sixty million bacteria. A case of mine now being treated, that of a boy of six years, has already received eight doses of forty million to the dose. Four days ago he had a moderate bronchitis with few large coarse râles, heard over both sides of back. His father says he coughs or whoops about four times a day, not at night. I am experimenting with triple bromides for such pertussis tail enders. My own cases follow:

CASE I. April 14, 1911. Sally N., twelve months old. Pertussis for five weeks. Paroxysms about every two hours. Vomited at each attack. Physical examination showed an emaciated chicken breasted infant, no teeth, anterior fontanelle large, and patulous heart sound. The spleen easily felt with the finger tip (without deep inspiration), as round and smooth extending two finger breadths below the costal border. The liver was enlarged downward half way to umbilicus. The wrists and ankles were cuffed, a marked rosary existed. No bow legs, vibration of the *alæ nasi*, dullness over both lower lobes of lung. Over right front of chest on deep inspiration, coarse moist râles, graduating to fine moist. Abdomen pendulous, temperature 102° F. Constipation. Injected pertussis vaccine ten million into right buttock.

April 16th, over left side of chest, front and back, coarse moist râles on deep inspiration. Over right side, front and back, dullness, restricted inspiration, and moderately prolonged expiration. Over this area, front and back, coarse moist and fine râles. The infant vomited everything before being brought to me. I put her on a diet of milk three quarters to one quarter of boiled water, every four hours. Her diet had been boiled milk, eggs, and mashed potatoes; stewed fruit juices were ordered at feeding, and between, raw orange and pineapple juices. Bowels acted twice daily. Stools normal in appearance.

April 19th. Paroxysms, mother said child was no better, infant racked itself badly, no further vomiting, appetite improved, bowels moved once a day, but movements were hard, liver less enlarged, now one finger's breadth below costal border, spleen less enlarged. Over left lung, front and back, coarse moist râles. Right lung restricted in inspiration and the breath sounds were indistinct over both front and back. Over this area flatness.

April 21st. Cough less severe. Same number of paroxysms, however, day and night. Appetite good; appearance was better. Over right front and back of chest, flatness and loss of voice sounds. Coarse and fine moist râles over the flat area, spleen and liver same size. Vaccine twenty million.

April 26th. Few paroxysms since last injections; cough, pharyngeal in character without paroxysms once a day, none at night, no fever, moderate constipation. Absolute flatness was in evidence over right lung; no needle puncture allowed; spleen and liver same as last time.

May 3d. Paroxysms once in twenty-four, or once in forty-eight hours, attacks not severe, no fever, appetite good, bowels moved once a day, lungs clearing behind, respiration on both sides less labored, only few coarse moist râles present in right lung. No flatness or dullness. Vaccine ten million.

May 6th. Lungs continued to clear. Appetite good, bowels regular, moderate distinct breathing in right lung, no fever.

May 10th. No further paroxysms, condition of patient good, spleen normal, liver nearly so.

CASE II. July 28, 1911. I injected a baby two and one fourth years old with twenty million bacteria; on July 31st, forty million; on August 2d, forty million; on August 5th, twenty million with continuation of vomiting, paroxysms possibly less severe, but the same in number as before. The mother and father were disgusted and vaccine treatment was discontinued.

The failures of myself and others may be due to an impotent vaccine, insufficient doses, length of time between doses too great, faulty injection, too near mealtime, or depending on whether the infant is nursed or bottle fed.

111 WEST SEVENTY-SEVENTH STREET.

MALIGNANT GROWTHS.*

A Plea for More Conservative Treatment.

BY RUSSELL H. BOGGS, M. D.,

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At the present time it is evident that there is a profound sentiment spreading among the leading minds of the profession, which questions the wisdom of the hitherto unquestioned practice of treating all malignant growths by the most radical means at our command. This sentiment springs mainly from a more comprehensive experience with a great number of cases traced out carefully to their end results. It is self evident that such an experience becomes possible only with the passing of many years, and much careful following up of cases.

*Read before the American Röntgen Ray Society at Niagara Falls, N. Y., September 12, 1912.

We all know for what a long time it has been taught and accepted as a truth beyond dispute, that the only proper and scientific method in malignancy was immediate extirpation, wide and merciless, in all cases not hopelessly inoperable on the face of things. This includes, obviously, the removal of all lymphatics draining the diseased area so far as possible, and often a sacrifice of many important structures contiguous to the growth, especially muscle and large areas of skin. The surgeons have tried conscientiously to avoid the possibility of leaving any cancer cells behind. We have all admired the many brilliant operations devised along these lines, and we know how rigorously they were put into practice in innumerable cases. And now at last time enough has elapsed to form some true estimate, in the light of experience, of the value of these extreme radical measures.

WHAT OPINION MUST WE FORM?

In a recent clinical lecture, Dr. John B. Murphy spoke of the great shock he received on reading an article in one of the British medical journals, wherein was analyzed a series of cases of epithelioma of the lip, extending over a period of twenty or twenty-five years. It was demonstrated, from the cases that could be traced, that fifty-two per cent. of the patients who had carcinoma or epithelioma of the lip, *without any demonstrable metastasis* at the time of the operation, died a cancer death. Doctor Murphy further states that seventy-six per cent. of the patients who *have* a demonstrable enlargement of the gland at the time of the operation die a cancer death. Murphy goes on to speak of mammary carcinoma, and contends that the situation here is "equally unpleasant." "The improved technic," he says, "that has been adopted in recent years,—first, that of Halstead; second, the splendid technic of Rodman; and, —third, the additional advance brought out by Handley; would tend to make us believe that we could get better final results in the future than we have been having in the past. That appeared to be true for a long time until Halstead analyzed his statistics at the meeting of the American Surgical Association in Cleveland. That analysis certainly did not justify us in cherishing much hope."

Nothing could better support the position I am taking in regard to the end results in the purely surgical treatment of malignancy than Doctor Murphy's mature and ripened opinion as expressed in this lecture. "An analysis of that class of cases," he concludes, "disheartened me very much, and an analysis of the most extensive operations done in various portions of the body later has added to my discomfort, and has made the cancer field rather a hopeless proposition to me. I think we can honestly say that we have not improved our cancer results in the last quarter of a century."

It must be clearly borne in mind that Murphy is speaking here of those regions in which cancer is always peculiarly virulent, because of their rich lymphatic supply. By comparison, an epithelioma of the upper half of the face, for instance, is almost a benign growth, and is usually easily and permanently cured, if taken at all early and treated with any skill. Indeed as far as the prognosis is con-

cerned we can classify cancers of any type by location better than in any other way.

The virulence in malignancy increases or decreases very strictly with the richness or the poverty of the lymphatic supply in the various parts of the body. Here is a rule which can never be lost sight of, either by the surgeon or the röntgenologist. Now it is an absolute fact that, when properly applied, the Röntgen rays decrease the lymphatic permeability, and produce a condition most unfavorable to the dissemination of the cancerous process, thus tending to render the aspect of an unfavorably situated lesion more favorable. I think all real röntgenologists at the present time appreciate this power of Röntgen therapy upon the lymphatic system, and the powerful part it has played in the prevention of recurrences and metastases as well as at times making otherwise inoperable cases operable. This in connection with its direct destructive action on the neoplastic cells and its strongly alterative action on the healthy cells, all of which it has when properly administered, gives it a very important place in the treatment of malignancy.

Every malignant growth presents a separate and distinct problem which calls for cordial and earnest team work among all concerned. The patient himself must be brought so far as possible to be one of the team. For many years before the employment of Röntgen rays, surgery held out the only chance of relief. The favorable cases cured by surgery gave the popular belief all over the world that this was the only hope. However, almost every case of malignancy, except where very superficially or favorably situated, recurred. Many relieved themselves of the responsibility by referring the patient for operation, even if the outlook was unfavorable. The careful study of cases in the last few years is putting us in a position to determine whether the treatment is for palliation or for cure.

The improvement in surgical technic and the recognition of the necessity of handling carefully both the diseased and healthy tissue, as well as the wide extirpation of all the structures involved, has lessened the number of recurrences by this method. It is to be remembered that recurrences after removal are regularly more malignant in type, more rapid in progress, more prone to metastases than was the original lesion. An incomplete operation (except in certain peculiar types) of itself is as powerless for palliation as for cure. It neither prolongs life nor diminishes suffering. Partial operations, therefore, are scarcely ever indicated. The fact that many long time patients, suffering from hopeless, inoperable malignant growths, have lived comfortably after Röntgen treatment, has impressed many with the power the rays play in the treatment of malignancy.

A few have formerly pointed out that possibly the rays had a tendency to produce metastases, but there is no foundation for such a statement, as practically all agree. I have seen cases where the disease was so extensive and the patient so emaciated that the rays had very little effect. But from this it must not be concluded, as has occasionally been done, that the rays increased metastases. X ray treatment of malignant diseases must be given powerful enough to produce the desired changes. The small

dose that is frequently given is useless. If small inefficient doses are given for a long time, naturally the growth will increase in size and a general metastasis occur, as if no treatment at all had been given.

Some have pointed out the great harm that has been done in incipient carcinoma, particularly of the breast, by careless and repeated manipulations of the growth. It is asserted that this is the cause not only of increasing the growth, but also of secondary infection of the lymphatic glands. I have seen a few cases where this is what seemed to have taken place in patients who were treated by massage at the hands of osteopaths. It is certainly better to remove a doubtful growth surgically than to manipulate it repeatedly until it becomes plain that the surgical treatment is usually useless and the patient is therefore in a hopeless state.

Ochsner, in the last edition of his *Clinical Surgery*, appreciated, at least to some extent, the value of Röntgen rays. In speaking of lymphosarcoma of the neck he states: "From the anatomical conditions present in this region an extensive removal is, of course, not possible, and consequently these cases, with very few exceptions, have been hopeless; and still there are undoubtedly a few who have recovered permanently. The after treatment with the x ray seems to be of great importance. We have seen severe cases in which the recurrent nodules have disappeared permanently."

I have treated quite a number of cases of lymphosarcoma of the neck, some following operation to prevent further recurrence, some when recurrence had taken place, and others without operation. The experience gained from treatment without operation has convinced me that these tumors will readily disappear under heavy radiation and that the results are more permanent if the patient is given x ray treatment at first without operation. In nearly every case the mass can be made to disappear under heavy radiation, if the treatment is begun before the glandular involvement is too widely scattered, even if the mass has attained considerable size and the skin is not broken. After the growth has entirely disappeared a second series of radiation should be begun as soon as the reaction has disappeared. It may be necessary to give a third and even a fourth series, watching the patient for at least a year or more.

I have patients apparently well for over four years in whom a gland has been removed and a pathological diagnosis made. In this connection I will mention the following case:

CASE. Mr. H., aged forty-two years, had a gland removed from the left cervical region at the Mayo clinic and a diagnosis of lymphosarcoma made. On account of the size of the mass, operation was not advised, and they suggested x ray treatment. At the end of six months the mass had disappeared and no glands were palpable. Three years and nine months have elapsed and there has been no recurrence. About the same time another patient was operated upon for lymphosarcoma of the cervical glands, followed by a recurrence before the wound was entirely healed. The tumor increased under radiation, given three times a week for four weeks, until the recurrence was almost as large as the original growth. Then intense radiation was given daily for three weeks, after which irregular treatment was given for the next six months. Up to the present time there has been no recurrence.

My most successful results in sarcoma have been

chiefly confined to the lymphatic glands. In a few cases in which the disease involved other structures the end results were unfavorable, except in the case of a patient with an inoperable sarcoma at the junction of the clavicle and the sternum. This patient has been apparently cured for five years. Much palliation was derived in many of these cases. Pfahler and others have shown many such cases are not only greatly benefited, but entirely cured by this method.

The carcinomatous cases in which the Röntgen rays have been of the greatest services are limited to those of the breast, cervical glands, and other external parts when internal metastasis has not taken place. Röntgen therapy is applied in deeply seated growths, not with the idea of effecting a cure, but in order to check the progress and make the patient more comfortable; used preparatory to operation, and again, postoperatively to destroy any remaining foci.

Postoperative Röntgen treatment has been adopted as a routine procedure by the most progressive physicians and surgeons. This treatment is just as important as the wide removal of a growth, as it makes the operation more radical. It is always a question how far the operator should go in the removal of adjacent glands, and in many cases it is impossible to go far enough. The size of a growth does not always determine likelihood of a recurrence. Therefore, to give the best chance of a permanent cure the rays must be employed, and likewise there is also a question as to the extent of the reaction necessary to destroy the remaining foci left after an operation, but the mistake has been, as a rule, that the radiation has been too limited both as to area and to quantity. If the best results are to be expected, we must give the radiation as soon as possible after the operation and, not as many have done in the past, wait until a recurrence had taken place. Frequently physicians and surgeons advise their patients to have Röntgen treatment after the operation, but advise them to rest or recuperate first, thus losing valuable time.

When treatment is given it certainly must be according to the judgment and discretion of the roentgenologist, and not of the physician or surgeon referring the patient, unless he is familiar with this method and has followed up a number of cases. It is most disheartening the way physicians and surgeons take it upon themselves to tell the patient when he or she has had sufficient radiation, and this explains many recurrences. Any one who has had sufficient experience in malignancy knows that a few treatments are useless unless followed up systematically and as thoroughly as a course of mercury in syphilis; and while the time may come that the experiments now being carried on in Europe will lead to a treatment for cancer analogous to the salvarsan treatment, still we must rely at present on the Röntgen rays, which remain the best treatment we have for palliation, prophylaxis, and cure in certain types.

In the paper which I read before this society two years ago, I spoke of my own faulty technic in a case which I had treated six years before. The patient received heavy radiations, after operation, over the anterior chest wall, but very little

over the supraclavicular region. A supraclavicular recurrence was noticed six years after the operation. Under heavy Röntgen treatment the recurrence almost entirely disappeared for a year. She is now back with a second recurrence, but is comfortable and the picture of health. This recurrence, which sprang up quickly, was each time controlled by x ray and the growth became hard, freely movable, and approached the scirrhus type. We all know that the atrophic scirrhus type is much less malignant than the medullary carcinoma, that also the rays increase the stroma and decrease the cellular elements, thus tending to convert a medullary to a scirrhus type. It decreases not only the mass but also the degree of malignancy. The palliation and the prolongation of life that the patients receive from the Röntgen treatment in recurrent carcinoma should never be denied them.

The external recurrences can be caused to disappear unless too extensive, and great relief is often obtained when the bronchial and mediastinal glands are involved. Hopeless cases which have not been operated in derive more benefit in comparison with hopeless recurrent cases. These patients not only obtain palliation sooner, but live longer and more comfortably than those with recurrent cases, possibly because the bronchial and the mediastinal glands are not so much involved. Many hopeless cases present themselves when they are almost in a septic condition, and after a few heavy treatments there is not only marked improvement in the disease itself, but the aspect of the patient is completely changed until from one of the most miserable objects in the world she usually becomes fairly comfortable.

Ochsner's conclusion in regard to recurrent carcinoma of the breast is as follows: "During the past few years a number of these apparently hopeless cases have been cured after the use of Röntgen rays. Whether such recovery is to be permanent remains to be seen. In our own experience no patient has presented herself for treatment of this condition to whom we could promise any surgical relief."

The question of anteoperative treatment is still a live subject for discussion, and my experience in the past few years makes me feel firmer in regard to anteoperative treatment of many cases of malignant growths than I stated in the paper which I read before this society two years ago.

It is well known that carcinoma of the glands of the neck is nearly always secondary to epithelioma of the face, carcinoma of the larynx, parotid glands, tonsil, or tongue. The following is Ochsner's treatment of the glands of the neck: "Thorough surgical removal is the only treatment that promises anything, with the possible exception of treatment by the x ray. The condition is, therefore, almost hopeless. These cases should all receive vigorous after treatment with the x ray."

In epithelioma we are dealing with a malignant condition, but this varies with the pathological condition of the growth and, as before brought out, with the location. These lesions range from an almost invisible scaly spot, almost benign in character, to the far advanced cases with extensive glandular metastases. The initial lesions often pro-

gress slowly, changing very little for a few months or even a few years, but it must be also borne in mind that they will eventually become active, involving deeper structures and adjacent glands, thus proving fatal. The treatment of many of these early lesions is really prophylactic in nature, but this must be properly done, and the old method of applying stimulating ointments or irritating caustics is to be condemned. The experience of the older physicians has shown the great harm frequently done by these improper methods, and is the real cause of the popular belief that it is a dangerous procedure to remove a scaly spot, wart, or mole before it becomes malignant. Whenever an epithelioma is treated it should be thoroughly and completely removed no difference what method is used.

There are a number of processes which will cure a greater percentage of these early lesions, but it is also true that more cases can be permanently cured and that the cosmetic results are better when removed by radiation. Selection of the Röntgen method for the removal of the early lesions may seem extreme; but since experience has shown that the prognosis in any case has proved uncertain, and that the permanent results are so much better, it is a question if it is not always advisable to give the few necessary treatments in order to effect a cure. On the other hand, it is never advisable to give several hundred treatments of short duration, covering one or two years, producing a degeneration followed by a Röntgen ulcer. I have seen a few such cases in consultation, and the operator did not know that he was treating a Röntgen ulcer instead of an epithelioma. Every dermatologist and röntgenologist has undoubtedly seen the same condition, but in the early days of x rays many failed to realize the difference in pathology. When these Röntgen ulcers are removed with all the degenerated tissue, a permanent cure follows almost invariably. When the epithelioma is far advanced or of the more malignant type it has become quite generally recognized that the Röntgen ray is the method which should be employed.

Pusey's extensive experience in the treatment of epitheliomas of all types and the care with which he follows up the end results, make any statement of his along this line authoritative. Doctor Pusey lately gave the history of thirty-six or thirty-eight cases of epithelioma of the lower lip which were treated by means of the x ray more than three years ago and whose subsequent histories were known. In only two instances were there subsequent metastases under the jaw—approximately five per cent. of failures, which does nearly approach the percentage of metastases, occurring under the jaw after surgical interference.

CONCLUSION.

In conclusion, I believe that the cumulative experience of many points to these facts:

1. More conservative treatment of malignant growths must be practised in order to secure more positive results in curable cases, and effect greater palliation in hopeless cases.

2. Degree and location of malignancy should determine the treatment.

3. Good results follow from early operations when favorably situated.

4. Postoperative Röntgen treatment, even in these early operations, decreases recurrences.

5. Some unfavorable cases can be made more favorable for operation by anteoperative treatment.

6. Hopeless cases which have not been operated in derive more benefit in comparison with hopeless recurrent cases.

7. With many the Röntgen ray is superseding all other methods, even excision radically performed, in the treatment of epithelioma, unless it involves mucous membrane.

When many more receive a salutary shock in studying malignancy, they are certain to avail themselves of the value of the Röntgen rays in the treatment of the seemingly favorable cases, and as an adjuvant and a palliative measure in the more advanced.

315 EMPIRE BUILDING.

THE EDUCATION OF THE PUBLIC IN PERSONAL HYGIENE.*

The Value of Popular Lectures.

BY ROSALIE SLAUGHTER MORTON, M. D.,
New York,

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Medical School and Hospital.

The need for education by lectures and much of the valuable work which has been done in educating the public in personal hygiene has been so ably set forth by the speakers who have preceded me in this symposium, that I shall confine myself according to the request of Dr. Herbert D. Pease, secretary of this section, to a brief and partial summary of the national work in public health education which has been going forward under the American Medical Association since June, 1909, as one of the constructive features of a congress, is its bringing together of people interested in similar work to compare methods and results and to keep informed regarding each other's plans and purposes.

The average illness to-day in the United States is equal to ten days' incapacity for each individual. It is, therefore, urgently necessary that we work together; for all we can all do will be needed to materially lower this total of largely preventable inefficiency.

The plan of organization of the American Medical Association Committee for Public Health Education among Women is the formation under the association in the county medical societies throughout the United States of committees on public health education, of which the one for New York county may be taken as a type.

Under this committee's auspices, in the New York Academy of Medicine for the last three winters, a series of twelve lectures has been given on alternate Thursday afternoons and Wednesday

*Read before the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., September 26, 1912.

evenings to men, women, and children of all classes of society. The wide public interest in the presentation of plain facts regarding health is shown by the fact that the seating capacity of the hall is 375 persons, and on every occasion the adjoining rooms had to be thrown open and frequently there was not standing room, the average attendance being 500 persons. One evening the number reached 1,000 and it was necessary to have our overflow meeting in another part of the building. A general recognition of the value of knowledge tending to build up the individual and community standard of health was shown by the fact that working men in flannel shirts sat next to society women. Bank clerks, moving picture operators, clerks of all kinds, members of women's clubs, school teachers, Young Women's and Young Men's Christian Association workers, sisters of charity, members of the Salvation Army, social settlement workers, New York college professors, as well as people from surrounding towns, all came to these lectures. The secret of the success was that each member of the audience was made to feel that he or she was a vital part of the educational campaign. Many people have come to the whole series for three years. Many clubs and other organizations have arranged their programmes to cooperate with "the Academy lectures," as they are called; some schools required their scholars to take notes and gave them class credits accordingly. A high school and several private schools dismissed their classes so that both pupils and teachers could attend.

The lecturers are all members of the Medical Society of the County of New York. The subjects, free from technicalities, presented there and in other county medical societies throughout the country are:

1. Conservation of our greatest natural resource, the health of the people.
2. The educational value of pain.
3. Food, its relation to intellectual and physical development.
4. Food values.
5. Care of food in the market and the home.
6. Restaurant inspection.
7. The relation of clothing to physical and moral health.
8. The value of exercise and rest to health.
9. The causes and prevention of nervousness.
10. The relation of pure water to public health.
11. The common drinking cup.
12. The air we breathe and the value of ventilation.
13. Sanitation of the home.
14. The sanitation of street cars and other public conveyances.
15. Open air schools and healthful school buildings.
16. The importance of medical inspection of public schools.
17. The relation of clean streets to public health.
18. Pure milk and infant hygiene.
19. Care of the growing child.
20. Habit postures, good and bad.
21. The relation of home and school to the health of the child.
22. The relation of children's amusements to health.
23. The ounce of prevention.
24. Bacteria helpful and harmful.
25. The prevention of Fourth of July injuries and tetanus.
26. The cause and prevention of colds, bronchitis, etc.
27. The care of nose, throat, and ears.
28. The relation of adenoids, tonsils, and teeth to health.
29. Care of the eyes and prevention of blindness.
30. The relation of flies, mosquitoes, etc., to public health.
31. Prevention of some of the commoner skin diseases.

32. How to meet emergencies, hemorrhage, burns, etc.
33. The care of contagious diseases.
34. The prevention of tuberculosis.
35. Cleanliness, moral, mental, and physical.
36. Causes and prevention of immorality among children of high school age.
37. How to instruct children in regard to the origin of life.
38. Necessity for parent instruction in sex hygiene.
39. The responsibility of girlhood to womanhood (for girls).
40. The responsibility of boyhood to fatherhood.
41. Eugenics.
42. The value of early diagnosis of cancer in women.

Several of these are combined, or the various phases elaborated, as may be seen by reference to the programmes issued by the Public Health Education Committee of the Medical Society of the County of New York from January, 1909, to March, 1912.

We have found that the best way of obtaining results is: 1. To pay especial attention to the ventilation of the hall, as an accumulation of carbon dioxide in the air makes it impossible for the audience to listen attentively. 2. To avoid having the audience face the light, and to have the lights on the platform half shaded so that while they illuminate the charts or other illustrations, they do not tire the eyes by shining into them. 3. To have each speaker limited to twenty minutes and requested to make a few clear points, as the change of voice and personality of the speaker holds the attention and accentuates different phases of a subject better than when one speaker covers the same points in an hour, for the auditory nerve unconsciously grows tired from the same inflections of voice. 4. To request the speakers to compare their addresses, so that there will be no repetition and no contention, the object being to give to the audience a constructive idea of the subject presented which shall be helpful on broad lines. 5. To use charts and objects as illustrations to demonstrate simple home measures for health and hygiene. 6. To have lantern illustrations limited to from ten to twenty minutes in one symposium to avoid fatiguing the eyes and consequently the rest of the body. 7. To encourage the audience to ask questions of general application and to answer them frankly, fully, and cordially, each speaker answering the questions falling under his or her paper. 8. To treat all questions seriously with a spirit of encouraging those who have health superstitions to voice them and be told the truth. 9. To make a custom of repeating the question so that the answer may be clearly understood in its relation to the interrogation, and in order that nervous and uneducated members of the audience may feel free to ask questions, knowing that in a tactful and kindly way the sense of their questions will be repeated without the clumsy wording. 10. At the end of each course to ask the audience by unsigned slip ballot to indicate subjects which will be most helpful to them, so that the twelve with the highest vote may be put on the next programme.

The sense of personal responsibility of the audience is aroused by their realization of the practicality of the work, that it is absolutely altruistic in nature, that the lecturers are people who are exceptionally busy with the immediate demands of the

acutely ill, and that in order to have this work of prevention as wide reaching as it should be, all must use the knowledge gained not only for themselves, but for their children, and also in whatever group work they are interested in developing; for instance, The Mothers Club of New York has made its entire programme of meetings for this winter relate to education regarding the mental, moral, and physical health of children.

During the first year of the New York city lectures, which are part of the American Medical Association education campaign, they were the only series in the city; the following year there were six similar series going forward under other agencies, and there was no diminution of attendance at the lectures given in the Academy of Medicine.

The absolutely cordial relation between this and similar efforts looking to health betterment in New York city is one of the best features of the work. The 1911-12 yearly report of the National American Medical Association shows active cooperation with sixty-seven organizations and numerous plans

the recent meeting of the National Education Association:

Many of the older generation have been anesthetized by repeated monotonies and it is in the plastic, receptive minds of the coming generation that the seeds of hygiene will bear richest fruit. It is easy to start a child right. He accepts and assimilates new truths, and these, becoming a part of his composition, find practical expression in adult life. To the grown up the introduction of sanitary science seems an intrusion; it has survived primeval customs and conditions. Why disrupt them? The children are, therefore, the sanitarian's greatest asset, and the improvement of their condition is the work of the century. This necessitates the education of their superiors in the science of right living, for in this movement for health conservation, parent, teacher and child are vital and inseparable factors.

Dr. Eleanor S. Everhard, of Dayton, Ohio, the present National Chairman of the American Medical Association Committee for Public Health Education among Women, says:

I am more and more impressed with the truth of the fact that it is the individual who must be taught. When the individual knows what is required for his or her physical safety and well being objection will be made to the



for extending the work. A general feeling of comradeship exists in all of the forty-eight States, the District of Columbia, Alaska, Hawaii, and Panama, where the work is now going forward, and a total of about 10,000 lectures have been given in English, German, Russian, Polish, Yiddish, and Italian, the aggregate number of people present at these lectures being over 600,000, a considerable number of these being children; for, as Dr. Eleanor Seymour, our California State chairman, said in representing the American Medical Association Committee at

careless and dangerous habits of neighbors, and personal hygiene immediately becomes civic hygiene. The object of this committee is to teach the individual by any method which is interesting, on any subject which will protect from disease. Methods differ in different States because people differ in different States.

The accompanying map shows the distribution of centres, and 5,000 of the 30,000 members of the American Medical Association are actively working with this committee, men and women being in about equal number.

Interest has been stimulated by prizes offered

for the best essays written on public health subjects, as in North Carolina. Our committee officers have helped to secure medical inspection in schools in several localities; also the opening of more playgrounds, as in Dubuque. They have selected a traveling "citizens' shelf" of books on the prevention of disease, compiled and published a comprehensive list of books on personal hygiene, in all its phases; have secured better ventilation of the street cars in certain cities; have been granted the appointment of a Health Day by the Governor of the State to be observed annually as in Georgia. They have established courses of lectures in connection with clinics, as at the Woman's Clinic in Washington, D. C., and have made education so popular that one woman asked for a book to take home to read to her husband in the evening, and one little girl, five years old, arrayed her playmates in a row and lectured to them on health.

The method of public instruction used in Iowa was to convert a baby beauty contest into a baby health contest. The children entered in the contest are divided into classes according to age, and environment from which they come. The "score card," in accordance with which they are examined, contains statistics for the healthy child, and the reverse of the card contains items of instruction for the parents. At the Iowa State Fair, 1912, it was discovered that Iowa babies measure above normal. They expect, within two or three years, to give the average of a thousand babies with the conditions in which they have been reared. Hundreds of score cards with information were distributed. In addition, talks were given daily in this department of the State fair; 236 babies were measured. More were entered, but failed to appear. The winner in the two to three year old girl rural contest this year was entered in the one and a half year old class last year and failed. Her mother learned wherein she was deficient and brought her up to normal by care in regard to diet, etc.

In those States which have been visited with special epidemics during the year, instruction has been given to the public in the prevention and quarantine of that disease.

In many States the newspapers are cooperating by distributing practical and accurate information. In some places the County Committee for Public Health Education, working with the librarian in the public library, reviews all the popular books on hygiene in the library, relegating to the back shelves those which are sentimental or out of date, and publishing for the benefit of the public, lists which are authoritative. The effort in each community is to teach the people how to prevent those diseases which are preventable, bearing in mind always that it is the individual we wish to reach, as communities cannot be educated *en masse*.

I regret that time does not permit me to do greater justice to the extensive and entirely gratuitous work which has been done by many physicians who have worked with unfailing generosity, and whose efforts, together with that of the many philanthropists whose work is so well represented at the congress, will, I believe, be a substantial contribution to the life saving work of the world.

SIXTY-THIRD STREET AND MADISON AVENUE.

ABDOMINAL RIGIDITY.*

By L. MILLER KAHN, M. D.,
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The object of this paper is to emphasize the importance of the defensive muscular rigidity of the abdominal wall in acute intraabdominal lesions. In the consideration of the diagnosis of acute conditions within the abdomen there are three cardinal local symptoms: Pain, tenderness, and abdominal rigidity. To estimate the degree of pain or the intensity of the tenderness, that is, local pain on point pressure, we must depend entirely on the statements of the patient and be guided by these and whatever other evidence, such as facial expression, slight bodily movements, and the like, that we may observe. In the final analysis both pain and tenderness are subjective and the value of evidence of their presence depends in great measure on the training, heredity, and resulting trustworthiness of the patient.

Rigidity of the abdominal muscles the clinician may judge for himself, its presence or absence, its degree, and the relation such rigidity bears to all other signs present.

In abdominal rigidity there is present involuntary, sustained, tonic contraction of the abdominal muscles. The involuntary character of the contraction must be clearly established in order that the diagnostic conclusions may have full value. Intermittent, voluntary contractions of the abdominal muscles represent response to pain or suggestion, and may have no definite relation to underlying pathological changes or may be present without such underlying pathological basis.

The character of the muscular tenseness may be determined by withdrawing the attention of the patient from the palpation of the abdomen, whereupon, if voluntary, relaxation occurs and the hand of the examiner notes the lessened resistance. The persistence of the reflex is the result of successive stimuli and argues for a definite pathological basis. As the motor and sensory nerve supply of the abdominal muscles comes from the six lower intercostals as well as from the iliohypogastric and ilioinguinal, these stimuli may originate within the thorax as well as within the abdomen.

Definite cerebrospinal nerve supply has been demonstrated throughout the parietal peritoneum save in a small area in front of the spinal column. According to Lennander (*Journal of the American Medical Association*, xlix, p. 836, 1907), sensation of pain within the abdomen is transmitted only by the phrenic, the six lower intercostals, the lumbar, and sacral nerves. It has been repeatedly shown that the stomach and intestines, as well as the liver and gallbladder, convey no sensation of pain on local experimental stimulation (Mitchell, *Ibidem*, lvii, p. 709, 1911). Howell (*Textbook of Physiology*, 1911) says, on the other hand, that "protopathic sensibility is found in the viscera, and it may be considered from the functional standpoint as a defensive agency against pathological changes in the tissues. This sensibility is low and consists

*Read at a meeting of the Society of the Alumni of Lebanon Hospital, New York, November 14, 1911.

of sensations of pain and of extreme changes in temperature, but the sensations are imperfectly localized." Lennander pointed out that the parietal peritoneum only can originate pain sensations, and while this opinion may subsequently have to be modified, it is probable that the abdominal reflex occurs in intraabdominal or endothoracic lesions only with injury to or inflammation of the parietal peritoneum or pleura or their adjacent lymph structures. It would seem that if within the abdomen the parietal peritoneum only may originate pain impulses that the mere distention or enlargement of an organ would not be sufficient to produce the reflex, and I have found this to be the case.

As is well known, localization of pain within the body is extremely indefinite, due mainly to the infrequent use of the pain sense beneath the surfaces. The so called head zones, or areas of hyperesthesia, which are only fairly indicative of lesions of the viscera, are not placed directly over the organ affected but in areas of the skin "supplied from the spinal segment from which the organ in question receives its sensory fibres; the misreference being due to a diffusion in the nerve centres." Those organs which receive no sensory fibres are in communication with the cerebrospinal system by means of the rami communicantes which connect the spinal with the sympathetic system.

Rigidity of the abdominal muscles is placed fairly definitely over the area involved within the abdomen, and thereby enables one to map out with exactness the location of the underlying pathological condition. If the condition is not yet localized, nor so well marked by the rigidity, the tenseness of the muscles may still be limited to the side involved or to the upper or lower half of the abdomen.

CAUSATIVE FACTORS IN RIGIDITY.

Foreign substances, usually bacteria or toxic serum within the peritoneal cavity or pleural space, which cause irritation or inflammation of the peritoneum or pleura, or their adjacent structures, may induce the abdominal reflex in direct ratio to their toxicity or power to bring about inflammatory reaction. Contents of hollow viscera, such as food, chyme, urine, bile, and the presence of blood within the peritoneal cavity, may and usually do produce rigidity of the muscles. Some organisms, as the tubercle bacilli, which are of low toxicity and do not induce acute reaction in the peritoneum, do not stimulate the reflex, so that in tuberculous peritonitis it is usually absent. Trauma to the peritoneum or pleura may also cause rigidity, but it is the opinion of the writer that injury to the muscles only does not result in producing the reflex. Whatever the causative factor may be, the presence of the rigidity of the muscles does not depend on the pain felt, and, in fact, rigidity is frequently present where there is no pain; neither does the degree of pain, when present, bear any fixed ratio to the degree of rigidity. Extensive abdominal rigidity is not necessarily an indication of a widely diffuse pyogenic process, but may only indicate the presence of large quantities of irritating serum, and this condition is commonly seen in early appendicitis.

As stated above, it seems highly probable that rigidity occurs in intraabdominal conditions only

when the parietal peritoneum or its adjacent lymph structures are involved, and the absence of this sign in cases of strangulated hernia and intussusception until many hours after the onset of these affections, seems to be convincing as to that point. So, too, when an inflamed appendix is securely incased in friendly omentum and there is no inflammatory process elsewhere in the cavity of the peritoneum, no rigidity is observed, and the mass may be easily palpable. The sensitiveness of the peritoneum may be destroyed by the action of bacteria and the ability to originate such impulses as produce rigidity be lost. The destructive action of the bacteria on the peritoneum and its loss of sensation have been fitly compared to the absence of pain in erysipelas when the skin becomes gangrenous. When an abscess is formed within the peritoneum and placed directly against the parietal surface of this membrane, which is made to form one of the walls of the abscess cavity, the peritoneum is soon destroyed and no rigidity remains.

PATHOLOGICAL CONDITIONS WITH RIGIDITY.

First and foremost among the pathological changes which are accompanied by abdominal rigidity, stands appendicitis. Here the muscles of the right lower quadrant are ordinarily affected first, but the entire right side of the abdomen may be rigid from the onset. Often the spasm is limited to the right rectus. Where the diseased appendix is laterally displaced to the left, the reflex may be limited to the left rectus or spread over the muscles of the left lower quadrant. In infections of the appendix the adjacent lymph structures in the parietal peritoneum are early involved, and rigidity coming on in the first few hours of the disease gives a splendid warning. Simple distention of the appendix, for example, by a cyst of this organ, does not excite the reflex. It cannot be too strongly stated that, taken with a due regard for the accompanying signs, we have in abdominal rigidity a directing and determining symptom in appendicitis.

In infectious processes within the gallbladder the rigidity is often present in the right upper quadrant. Here, too, the degree of the muscular spasm excited seems to bear a direct ratio to the amount of the pericholecystic inflammatory reaction. The mere presence of calculi in the gallbladder or biliary passages without acute reinfection is insufficient to excite the reflex. This accords well with the theory that the parietal peritoneum must be involved before rigidity is induced.

In abscess around the gallbladder, or perforation, the reflex is usually most marked. In a case recently operated in at Lebanon Hospital in the service of Dr. Henry Roth, I found the gallbladder distended with pus eight months after an operation at another hospital, for cholelithiasis and drainage of the gallbladder. The patient had a perfectly healed scar over the gallbladder, a temperature of 103° F., and marked rigidity over the right hypochondrium; this without severe pain or tenderness over the region. There were present pericholecystic adhesions and recent deposits of fibrin. The marked rigidity was considered sufficient indication for the second operation.

In rupture or perforation of a hollow viscus into

the peritoneal space we possess no other sign of equal importance, and while it is not intended that the other symptoms of visceral injury should be neglected, it has been my experience that the degree and extent of the rigidity of the abdominal muscles is our best guide as to operative interference. Rupture of the spleen or liver may be attended by the reflex, and as in rupture of the Fallopian tube due to ectopic gestation, the rigidity is due to the extravasation of blood.

In a case of subphrenic abscess I was greatly assisted in arriving at a correct diagnosis by the well defined rigidity in the right hypochondrium, along with other signs of the perihepatic infection.

Hall (*Journal of the American Medical Association*, p. 85, January 14, 1911) found rigidity in the abdominal muscles in sixty per cent. of gastric and duodenal ulcer. Pottenger (*Interstate Medical Journal*, May, 1911) has noted the presence of rigidity in tuberculosis of the intestines, especially in those parts most commonly involved, viz., the appendix, cecum, or ascending colon. He advises very light palpation over the abdomen, and if tuberculosis of these portions is present, the rigidity of the muscles on the right side is greater than normal. In both tuberculosis of the intestines and ulcer of the stomach the reflex is elicited in response to pain, and differs in that from the sustained rigidity in the acute conditions. In ulcer of the stomach or duodenum the skin and muscles of the abdomen may be exceedingly tender to touch and light pressure, and these are sufficient to produce contraction of the muscles.

Almost at the instant of perforation of a gastric or duodenal ulcer, the muscles over these regions stiffen, and as the contents of the stomach filter down the peritoneum, the entire musculature of the abdomen reacts to the irritating stimuli. In typhoid perforation the same rule holds good, and the observant clinician is well aware of the significance of abdominal rigidity accompanied by severe abdominal pain in typhoid fever.

In two cases of rupture of the urinary bladder the rigidity was most marked and extended over the entire abdomen, due to soiling of the peritoneum by urine and blood. In trauma of the kidney, with or without rupture, I have not found rigidity present unless the peritoneum was torn and there was contamination of the peritoneum. In rapid or violent distention of the posterior parietal peritoneum, as in sudden distention of the kidney pelvis, there may be rigidity. In the violent pain accompanying kidney colic, there is a marked reflex excited which is entirely dependent on the pain and with the relief of pain the spasm subsides.

In the female the pelvic infections through the Fallopian tubes are usually gonorrheal and do not, save in an occasional acute case, bring out the abdominal tenseness. This is probably due to a certain immunity of the peritoneum against the gonococcus and its toxins.

True, involuntary muscular rigidity does occur in irritation of the pleura, and perhaps of the lung, due either to infection or trauma, and one must be extremely cautious not to overlook a pleural or lung involvement, especially in children, even where all signs point to the abdomen as the seat of the

trouble. As the abdominal rigidity often precedes all other evidences of the condition existing in the chest, it may not be possible to be absolutely certain of the diagnosis, and it so happens that pneumonia is often confounded with appendicitis or cholecystitis. This is especially true when the pain in pneumonia is entirely abdominal and is accompanied by true abdominal rigidity. The cause of this is readily understood, as the six lower intercostals lie immediately under the parietal pleura and upon irritation transmit impulses to the muscles supplied by them. In young children, and women with flaccid abdominal muscles, the rigidity in all conditions is not likely to be well marked.

GENERAL CONSIDERATIONS.

In acute muscular rheumatism of the abdomen, intense rigidity has been described, as well as in the crises of tabes dorsalis; in the former the reflex, it may be assumed, is excited by the inflammatory process attacking the nerve ends in the muscles, while in the latter the impulses are central owing to the lesion in the cord.

A simple method of palpating the abdomen is the following: If, for example, the right lower quadrant is suspected, palpation is begun in the left lower quadrant, thence to the left upper; across the abdomen, taking in the epigastric, the right hypochondriac, and then downward to the right iliac region. It is of the highest importance to take away the patient's attention from the palpation, and if the tenderest area is not palpated at first this is usually feasible. An orderly method for the palpation is of great help in determining the various degrees of rigidity present in the different parts of the muscular wall. It is to be remembered that there are all grades of the abdominal reflex and that the importance of its presence depends, in great measure, on the other symptoms available for consideration.

Morphine has long been interdicted in all abdominal cases where the diagnosis is in doubt, and a survey of the protective functions of abdominal rigidity, which acts as a sentinel for the peritoneum, confirms the dictum. It is not to be doubted that when the muscles are rigid they act as splints to the viscera, and until more radical measures are decided upon this protection should not be destroyed by morphine.

The necessity of considering all other available symptoms present, along with a careful analysis of a complete history of the patient, cannot be too strongly urged, and the full weight having been given to these, it will be seen that abdominal rigidity is one of our most trustworthy signs of abdominal lesion. In the greatest number of cases it will enable us to judge, with a fair degree of accuracy, both the area involved and the intensity of the process.

In all intraabdominal lesions, whether traumatic or inflammatory, that are amenable to surgical treatment, the time factor plays an important rôle in the mortality statistics. Well marked abdominal rigidity is an early sign of peritoneal involvement, and, if its presence is heeded, a life saving warning.

223 WEST 113TH STREET.

CONCOMITANT CONVERGENT SQUINT.*

Value of Correcting Glasses in Its Treatment.

BY D. F. HARBRIDGE, M. D.,
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In concomitant squint, whatever the real determining factors may be, there is ever present, relatively at least, either an insufficiency or excessive action of opposing muscles. Of the varieties, permanent monocular, periodic, or alternating, convergent squint there is evidence of muscle imbalance in all. A certain number are explainable by the presence of anomalous anatomical conditions, congenital amblyopia, etc. The great majority, however, do not present these defects. Therefore various theories have been offered and defended by many advocates in explanation of this phenomenon, the two commanding perhaps the most serious consideration being the theory of Worth in the development of the so called fusion faculty, and that of Donder of a definite coordinate association between the act of convergence and accommodation. So constant is the relationship of esotropia with hyperopia, and exotropia with myopia, that it can be considered the rule, and all nonconforming cases as the exceptions, to be accounted for by inharmonious anatomical conditions, congenital amblyopia, etc.

If this association of hyperopia, inducing additional accommodative effort, with esotropia is the rule—and it impresses me strongly that such is the case—I am rather firm in the belief that it will explain the great majority of cases of convergent squint, so constantly is it present, particularly in the moderate degrees. The high degrees of hyperopia are not so frequent, for the reason that the eye accepts the situation—a blurred image—and does not make an excessive effort at accommodation, thus relieving the extra innervation of the internal rectus.

Worth's theory can be supported to a degree, but it seems to me that if the eyes are held in proper position for parallelism of the visual axis, and the incoordinate relationship between convergence and accommodative effort be overcome by placing correcting lenses before the eyes, surely in the great majority of instances fusion will follow naturally. The eye in its faulty position does not have this opportunity to be stimulated properly, with the result that fusion suffers and the deviating eye becomes more or less amblyopic. In my judgment the loss of the fusion faculty is more likely to be a result and not a cause of squint. Orientation takes place about the sixth month. In one instance which I observed very carefully I determined it had practically become permanent at about five and a half months. The fusion faculty is recorded to be practically fully established about the sixth to the seventh year.

The varieties of convergent squint in which the application of full correcting lenses has operated most favorably are permanent monocular and periodic. As to alternating squint, while it is true that vision is usually good in both eyes, full correcting lenses influence the condition but little. There

are other factors aside from the excessive accommodative effort involved. In periodic convergence of the young it is practically always favorable. In older patients, if the vision is good in the squinting eye, as is usually the case, and the deviation is not too great, the results are quite favorable. But if the eye is amblyopic the improvement in parallelism is less or nil. In this variety the condition is not, at least in its early manifestation, a true squint, but rather an excessive convergence power inducing spasm.

Regarding the constant monocular type, full correction is favorable, particularly, however, when the patients are seen early. The large majority of this variety occurs between the ages of one and three years. As soon as the squint becomes manifest in the child it should be under observation, and even as early as two years full correcting lenses must be ordered. They can be used very successfully by the little patient, such advice as "to wait and the child will outgrow the defect" being especially pernicious. The determination of the refraction is quite readily accomplished by the ophthalmoscope and retinoscope.

If the deviation is not too great, the foregoing treatment may suffice. However, it is true in most cases that if parallelism is not accomplished by the wearing of correcting lenses, it will be necessary to supplement their use by a simple orthoptic exercise obtained by blurring the sight of the fixing eye with instillations of atropine, thus compelling the child to use the deviating eye for useful vision. It is my custom to have a darkly smoked lens of a strength equal to the child's correction worn before the atropinized eye. When occasion requires it, it can easily be replaced by the clear lens.

The atropine is used for one month, then stopped for two weeks in order that the eye may be observed under active accommodation. If necessary, it is again instilled for another month, etc. If this method is carried out over a considerable length of time, it is advisable occasionally to suspend the atropine in the fixing eye and instill it into the deviating eye for a week or two, thus enabling the fixing eye fully to retain its function of parallelism and avoid becoming the squinter.

It may be advantageous in a certain number of cases to resort to the use of Worth's amblyscope, Krall's views prism exercise, etc. *But if the children are secured early enough I am sure the proportion requiring this additional exercise will be greatly in the minority.*

The amount of deviation can be estimated really more easily in the quite young child than in one of more mature years. The reflection of light in the eye of a child attracts its constant attention, and the position of the corneal reflex may be conveniently examined.

Children with squint who have been treated as above described should remain under observation well up to the seventh year, or until fusion is firmly established. A small amount of squint (ten to twenty per cent.) with good vision should not be interfered with surgically until after the twelfth or thirteenth year, owing to the fact that the skull broadens somewhat until that age.

*Read before the Philadelphia Polyclinic Ophthalmic Society, January, 1912.

CRIPPLED CHILDREN IN THE ENGLISH PUBLIC SCHOOLS.

BY DOUGLAS C. McMURTRIE, M. D.,
New York.

Exceptional opportunities are now offered to crippled children in the English public schools by the system of special classes maintained for them. Such classes are sanctioned, and partially supported, by Parliament and have been established by many local education committees. Some cities, notably London and Liverpool, have made especially ample provision for cripples, or the physically defective as they are officially designated. The term "physical defect," has, however, been so interpreted as practically to limit its validity for cripples only. It has been construed as to apply only to those children who were out of school on account of organic disease or its effects, and had previously either gone without educational advantages or been taught by private philanthropic agencies.

The first public school class for cripples was opened in London in 1899 to continue, under State auspices, the work then being done by private means at the Passmore Edwards Settlement. In this first experiment the school board furnished instruction only, the settlement providing the premises for the class and the transportation facilities for the children. The following year, the school board passed a resolution in favor of the establishment of separate schools for crippled children of normal intelligence, and since then the number of such schools in England has been growing steadily.

It may be here explained that all of the English schools are under the general direction of the National Board of Education. This board prescribes certain rules, and schools complying with the regulations are certified as being entitled to receive the imperial grant. In the case of the classes for the elementary instruction of crippled children this grant amounts to fifty shillings a year to each unit of average attendance. For manual instruction a grant of thirty or forty shillings for each pupil per annum is paid, the amount varying with the age of the child. In all cases the remainder of the expense is borne by the local education authority.

One of the most important considerations in connection with the classes for crippled children is the transportation to and from the schools. For this purpose special ambulances and omnibuses are used. The ambulances are so constructed as to allow the insertion overhead of two stretchers for recumbent patients and provide inside seating accommodation below for fourteen children in addition to the nurse or attendant. The omnibuses are ordinary stages. Within the jurisdiction of the London county education committee alone, forty-three ambulances and thirty omnibuses are in commission for the transportation of crippled children. A commensurate number of nurses and attendants are employed to accompany the children in these vehicles. For some cases not requiring a special means of transportation, tram tickets or carfares are furnished.

On account of the circumstances it is impossible to send the children home at luncheon time and they are therefore given a hot meal at the school. In

some cities the meals are provided by the school board and in others are furnished by private agencies. Liverpool is an example of the first method. The midday meal is provided under the direction of the medical officer of the education committee. With a view to covering the expense of the meal and partially defraying the cost of transportation and medical attention, the committee aims to secure from the parents, in cases where they can afford it, a contribution which may vary anywhere from six to fifty cents a week. The system in London is typical of the second method. There the school board provides the kitchens, the utensils, and the gas for cooking, while an outside organization, the Crippled Children's Training and Dinner Society, furnishes the provisions and the service. This society aims to help meet expenses by soliciting contributions from the parents. The arrangement works well and in comparatively few cases does the society fail to obtain the cost of the food.

The curriculum in the schools for the physically defective is very similar to that of the ordinary schools, but as considerable individual attention is needed, the classes are smaller. Some of the children are quite backward in their studies, but this is due rather to their having spent long periods in hospitals without educational advantages than to any mental incapacity. Care must be used in the selection of teachers for crippled children as they must be endowed with especial patience and adaptability.

The number of pupils to each teacher in the London schools for cripples is shown below for four different years.

	1906.	1907.	1908.	1909.
Number of teachers	66	90	93	107
Number of pupils	1,547	2,045	2,392	2,544
Average number of pupils to each teacher	23.4	22.7	25.7	23.8

It will be noted that in 1909 the number of pupils to each teacher decreased. This was not due to a decrease in the number of pupils, but to a very material increase in the teaching staff.

Visiting art teachers give instruction to the most advanced children on one day a week and develop any artistic faculties which they may possess. It is hoped that in many cases the children may be able to earn a livelihood at artistic work. Lending libraries are also provided for the use of scholars above a certain standard in all the schools for physically defective children. Owing to the importance of giving the children some trade training, such as shall help fit them to earn a living later on, some form of instruction in work of a constructive character is given. Of course the form of instruction is modified by the limitations imposed by physical disabilities in individual cases. The forms of manual instruction specified by the English Education Board as being suitable for physically defective children are as follows:

For younger children: Bead threading, drawing, paper folding, paper tearing, paper cutting and mounting, paper mat making, clay modelling, plasticine modelling, macramé work, netting and other string work, kindergarten sewing, wood strip work, and pith cane work.

For older boys: Drawing and design, woodwork and carpentry, tailoring, shoemaking and repairing, cardboard modelling, chair caning, gardening and farm work, house-

hold employments, mat and rug making, repoussé, bent iron work, printing, baking, and basket work.

For older girls: Cookery, laundry work, housewifery, needlework plain and fancy, knitting, mending, machine sewing, drawing and design, basket work, chair caning, and gardening.

In addition to the work done in the regular classes there are schools for trade instruction which specialize along certain lines. Two such trade schools have been recently opened by the London education committee and are directly under its jurisdiction. They represent a new and most interesting departure. The New King's Road (Fulham) Special Trade School was opened June 15, 1908, and on October 27th of the same year the Stanley Street (Deptford) Special Trade School was inaugurated. The former accommodates forty, and the latter thirty-two, crippled girls. In these schools the girls receive instruction in English, drawing, dress making, blouse making, embroidery, and needlework. The London County Council decided on February 12, 1907, that twelve London boys should be sent to the Heritage Crafts School, at Chailey, Sussex, where they receive a thorough training in woodwork. On July 28, 1908, the council decided to send twelve girls to these same schools. The council also offers twelve trade scholarships which are tenable at various approved private institutions. Such scholarships are good for a term of one year and are renewable up to four years. The age limit is from fifteen to seventeen years, the parents' income limit, \$800 annually, the child must have attended a certified special school for at least two years and must not be disabled by infirmity from earning a livelihood after training.

The classes for crippled children are a part of the general system of special schools for defectives of several types, blind, deaf, crippled, epileptic, and mentally defective. As a general rule, a special school for one or more of the aforementioned types is located in a building of its own with the parts occupied by one type of pupil structurally separated from the part used by children of another type. Thus, for example, classes for cripples and epileptics may occupy different divisions of the same special school. The buildings are well suited to their purposes. The building rules applying to the classes for physically defective children and which are supplementary to the rules regarding regular school buildings are as follows:

Schools for various types of afflicted children should not be held in the same building, unless structurally separated for each type.

All rooms for physically defective children must be on the ground floor.

Where no field or other larger space has been secured, the superficial area of the site should provide not less than thirty square feet for each child of open space exclusive of buildings. The playgrounds for boys and girls should be separate except where the offices are inside the school. There should be a large covered shed open on one side, provided with ample top light, which, under supervision, may be used by boys and girls together.

In the class rooms not less than eighteen square feet of floor space per child in average attendance must be provided.

No class room shall contain less than 360 square feet of floor space.

The light should be ample and such as to suit the mode of teaching employed.

In day schools there should be a wide and well lighted corridor or hall, and a room for the use of the teachers. Accommodation should be arranged for medical inspection.

Each child must, as a rule, be provided with a desk of suitable size sloped at an angle of from ten to fifteen degrees.

Suitable rooms or accommodation must be provided for manual instruction. Such rooms if suitably arranged may be reckoned in the accommodation.

All playgrounds, offices, cloak rooms, lavatories, entrances, and passages must be so constructed as to admit of easy supervision by the teachers of the school and must, as a rule, be kept for the exclusive use of the children attending that school.

The permissive act of Parliament allowing local education authorities to make provision for cripples was passed first for England only in 1899. Since that time the number of special schools for the physically defective has grown largely. As far as I can ascertain there are at present fifty-four special schools for cripples in England. Forty-six of these might be roughly classed as regular public schools. Two are special trade schools under public auspices, and six are residential institutions in which instruction is given or partial support supplied by the education authorities.

London is easily the leader among English cities in the work for the education of cripples, and Liverpool has also been prominent. Features of the systems in both these cities have been already described. In Birmingham the system is very similar. Along trade lines tuition is given to certain boys in tailoring, light carpentry and fretwork, shorthand and typewriting, and basket work, and to certain girls in tailoring, millinery, embroidery, cookery, laundry work, shorthand and typewriting, and basket work. The secretary of education informs me, however, that it is difficult to give trade education to the majority of the children owing to their physical condition.

In Leeds there is one school for cripples. Some years ago the education committee purchased a residence in one of the better districts of the city and converted it into a special school. Children from seven to sixteen years of age are admitted. In addition to the ordinary educational subjects, the scholars are taught some manual occupation, such as rug making, chair caning, shorthand, typewriting, wood carving, dressmaking (for girls), and boot repairing (for boys). The special school hours are from 9.30 a. m. to 3.30 p. m., with the usual noon interval. The staff at this school (which has an accommodation of sixty-six) consists of a headmistress, three assistant teachers, a trained nurse, and a shoemaker in charge of the boot repairing workshop. The scholars are provided with a hot dinner daily by a voluntary organization known as the Leeds Invalid Children's Aid Society.

Sheffield is running an experimental school for crippled children which has an accommodation for twenty. The children attending the classes reside within a moderate distance of the school, which is situated near one of the main tram thoroughfares so as to facilitate the arrival of the children in the morning and their departure in the afternoon. No special means of transportation is provided. In

addition to the ordinary elementary subjects the children are instructed in rug and basket making, cane weaving, chip carving, and paper cutting and mounting.

The elementary education subcommittee of the city of Hull received on March 21, 1910, a very thorough report on the physically defective children of school age within its jurisdiction. A list of all such children in the city was obtained through the cooperation of various agencies and an analysis of the cases was made after a thorough individual medical inspection. It was found that there were but eight children who were incapable, by reason of their physical defects, of receiving education in an ordinary public elementary school, but could probably derive benefit from attendance at a special school. There appeared to be nine children in whose cases the provision of a special chair, a boot, or a carriage, would be of advantage and enable them to receive proper benefit from the instruction in the ordinary public schools. In the large cities there are aftercare committees which look to the needs of the crippled children after they leave the special schools. It is not possible here to describe their work in detail.

The cost of giving crippled children a primary education in the special classes maintained for them varies in different instances. In London during 1909 the average gross cost per capita was \$78.45. This included the cost of transportation. For the Liverpool classes the corresponding per capita expenditure for 1909 was \$51.34. In Birmingham the cost for each child was \$76.40. None of these figures include capital or administrative expenses.

The English cities have shown an excellent grasp of the conditions to be met in the care of crippled children and the situation is one of great promise. In 1906 an act was passed by Parliament, permitting local education authorities in Scotland to make provision for physically defective children within their several districts. Advantage has been taken of this and several schools for cripples have been started. The most extensive work in this line has been done by the school authorities of Glasgow, and classes for cripples are conducted at eleven centres: Bridgeton, Finnieston, Freeland, Grove Street, Hayfield, Shields Road, Govan Street, Port Street, Barrowfield, Woodlands Institute, and Strathclyde School. The latter has been very recently opened. Transportation is provided in special ambulances, nurses accompanying the children. Excellent work has been done and a considerable number of the children were certified, during the last session, as fit to take up the work of the ordinary classes. In Edinburgh there is one school for crippled children in present operation and a second will be open soon. The school board has in contemplation a third school, which, it is thought, if established would about meet the requirements of the city.

Within the last few years Parliament has passed an act providing for the education of afflicted children in Ireland. It is to be hoped that this will lead to the establishment of schools for crippled children there and have the same effect as did the similar acts in England and Scotland.

298 METROPOLITAN TOWER.

INCIPIENT PULMONARY TUBERCULOSIS.

Conclusions Based upon an Analysis of 3,310 Cases.

BY SAMUEL G. EHRENREICH, M. D.,

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Patients suffering from pulmonary tuberculosis, applying for admission to the Montefiore Home, are here divided by the examining physician into two groups, depending upon the stage of the disease present. The patients afflicted with the advanced stage of the disease are classed among those who are admitted to the home proper and do not concern us here. It is the incipient and moderately advanced patients which make up the subject under discussion in this paper, and of which I have recorded 3,310 in all, practically the number that have applied during the past four years; of these the writer has personally examined about thirty per cent., having made very careful observations upon them all, and has collected the few data and interesting conclusions herein mentioned. Before proceeding any further it should be made clear to all that the various figures cited cannot obviously be wholly and absolutely correct, as patients' statements are never entirely reliable; thus one patient may have been ill for years, and when asked for the duration of his illness may promptly reply, "Two or three months," or when attempting to ascertain the first symptom or symptoms of his present trouble, he will frequently overlook the gradual weakness and languor which have long preceded the sanguineous expectoration, the latter naturally being to him the first and only important symptom of "consumption." When, however, we consider the large number of cases collected, I am positive that certain general conclusions may be drawn, as I shall attempt to show.

I believe it will be of interest first briefly to describe the method of procedure in the examination of our cases in the clinic, so that a clearer insight into the results to follow may be obtained by the reader.

Clinics are held Monday and Thursday mornings from 9 a. m. to 1 p. m., for men and women respectively; the afternoons and evenings are far preferable, as then a rise in temperature, a most important sign in these early cases, is more frequently detected than in the mornings; but owing to the poor class of laborers, or so called wage earners, that apply, the afternoon hours would seriously interfere with their vocations, and many would far prefer to "stick to their jobs" than attend a clinic at the risk of losing them. In fact, a large number cannot stop work even for a short time without serious sacrifice. A careful history is taken by a physician, sputum examinations are made, and the pulse, weight, and rectal temperature taken by a nurse; the patient then receives a very careful, thorough physical examination, great stress being put upon general inspection, this having been of far greater aid in the diagnosis of early cases of pulmonary tuberculosis than is generally supposed among members of the profession; it frequently has occurred that these were the only signs obtained and were sufficient (in combination with the patient's history, pulse, and temperature) to warrant

a positive diagnosis. All doubtful patients attend the clinic weekly until a definite idea of the case can be arrived at; often patients have had to return for reexamination no less than five to ten times before a positive sign of tuberculosis was detected by the physician. If a case is found suitable, it is put upon the waiting list for admission to the Bedford Sanatorium, where it is sent about one to four months later; this delay is unfortunately caused by the comparatively large waiting list of such cases.

Sex: Of the 3,310 cases here reported, 1,930, or fifty-eight per cent., are in the male sex, and 1,380, or forty-two per cent., in the female sex.

Stage: Of the males, 1,093, or fifty-six per cent., are in the incipient stage of the disease, whereas 837, or forty-four per cent., are moderately advanced. The females, applying somewhat earlier than the men, have 909, or sixty-six per cent., in the first stage and only 471, or thirty-four per cent., in the second. Taking all cases together, sixty per cent. belong to the first and forty per cent. to the second class. There are quite a number of suspect cases, these naturally being included among the first stage cases. The method employed in classifying cases is the one adopted by the National Association for the Study and Prevention of Pulmonary Tuberculosis.

CLASSIFICATION OF CASES OF TUBERCULOSIS.

Age.	Number of cases	Proportion of total	Number of males	Proportion of males	Number of females	Proportion of females
Under 10....	130	4%	51	3%	79	6%
10-20 years..	857	26%	388	20%	469	34%
20-30 years..	1,258	38%	832	43%	426	31%
30-40 years..	754	23%	431	22%	323	23%
40-50 years..	261	8%	191	10%	70	5%
Above 50 ...	50	1%	37	2%	13	1%

From the foregoing table it can easily be seen that the number of females from ten to twenty years of age suffering from pulmonary tuberculosis far exceeds the number of males of the same age, whereas at the next decade the percentage of males increases proportionately above that of members of the opposite sex; a plausible explanation for this, as suggested by Dr. S. Wachsmann, medical director of the home, is the fact that the young ladies of to-day, beginning as they do at about the age of sixteen years to wear corsets and other garments necessitating tight lacing, greatly hinder proper expansion of their chests, thus interfering with the respiratory function and activity, and are therefore more susceptible to pulmonary tuberculosis than are young men of the corresponding age. Another feature of the table, and one long known and recognized, is the preponderance of the disease in individuals from ten to forty years of age, extremes of age being relatively slightly affected.

Family history: In 358 males and 312 females, or in twenty per cent. of all cases, a family predisposition was obtained, seven per cent. of these being parental and thirteen per cent. with collateral heredity. The usual estimates of various observers range from ten to twenty per cent. or even to fifty per cent. in some instances. Of 427 cases at the Johns Hopkins Hospital, there were fifty-three in which the mother had had tuberculosis, fifty-two in which the father had been affected, and 105 in which a brother or sister had had the disease (Osler).

Time of onset: I have especially attempted to ascertain as accurately as possible, the duration of each patient's illness prior to the time that he applied to the home or other institution, and have tabulated the results as follows:

Duration of illness	Males	Females
One month or less.....	100 or 5%	70 or 5%
One to three months.....	458 or 24%	308 or 23%
Three to six months.....	590 or 30%	470 or 34%
Six months to one year.....	430 or 22%	286 or 22%
One to two years.....	244 or 13%	161 or 12%
Above two years.....	108 or 6%	85 or 4%

It can thus easily be seen that about fifty per cent. of the patients have been ill at least six months before making application, most of these having progressed to the second stage of the disease, thus missing the chance for recovery.

Almost every practitioner is fairly well acquainted with the various reasons and causes offered by patients for this most unfortunate and serious neglect; but what was more than a surprise to me was the fact that more than fifteen per cent. of the patients had been informed by one or more physicians that their lungs were unaffected, were advised to continue working under unsanitary conditions and surroundings, and yet presented undoubted second stage cases of pulmonary tuberculosis when seen by the writer; in many instances the private physician did not deem it even necessary to examine the patient's sputum, but had he done so there would have been no doubt in his mind whatever as to the correct diagnosis. I can safely say, without any contradiction, that the physician's neglect in not properly examining and diagnosing cases of pulmonary tuberculosis is responsible for more than twenty per cent. of all our advanced cases. It is true, many patients do not consult a physician early enough; they suffer comparatively little discomfort or believe that it is a mere "cold," and they may drift on, unconscious of danger, until it is too late; others find it an advantage to conceal their knowledge of their disease, for reasons best known to themselves; but a fair percentage of late cases arises from the fact that the first physician or two hurriedly and carelessly examined the patient, and declared him to be nontuberculous; in fact, I have heard from more than one patient that his private physician declared he simply had a "cold," prescribed for it, and did not even make a physical examination.

Mode of onset: In many cases the onset of pulmonary tuberculosis is extremely insidious and obscure, but, as a rule, the patient can usually remember how his present trouble commenced, especially if he is closely questioned; it is of great importance positively to discover whether he had been in an absolutely good state of health previous to the time mentioned as that of the onset. The following results were obtained in my cases:

ONSET WITH

1. Cold (this including bronchitis, rhinitis, pharyngitis, influenza, hay fever, tonsillitis, a few cases of pneumonia, exposure during parturition or nursing, etc.) 2,122 cases (64%)
2. Hemoptysis 283 cases (8%) +
3. Sanguineous expectoration 160 cases (5%)
4. Pain in chest (females especially complaining of this) 316 cases (9%) +
5. Laryngeal symptoms 28 cases (1%)
6. Symptoms of dyspepsia and anemia..... 189 cases (5%) +
7. Pneumonia 70 cases (2%) +
8. Influenza 87 cases (3%)
9. Other symptoms (including fever, dyspnea, epistaxis, infectious diseases, etc.) 55 cases (2%)

Sputum examination: In 1,198 instances, or thirty-six per cent. of all cases, the sputum was positive for the presence of tubercle bacilli, and in 2,112, or sixty-four per cent., it was negative. As the sputum was examined but once or twice in the vast majority of cases, the following results cannot be absolutely conclusive; in a small percentage "positive" sputum developed after repeated examinations at Bedford, which are here included among the negatives.

STAGE ONE				STAGE TWO			
Positive	Negative			Positive	Negative		
No.	%	No.	%	No.	%	No.	%
383	20%	1,591	80%	815	61%	521	39%

In other words, in 19.5 per cent. of stage one and sixty-one per cent. of stage two cases, bacteriological examination of the expectoration showed the presence of tubercle bacilli, whereas in 80.5 per cent. of stage one and thirty-nine per cent. of stage two cases, such examinations proved to be negative.

In 291 cases a chemical examination of the sputum for the presence of albumin was performed by Doctor Felderbaum, to whom I am greatly indebted. The test, as described by Sahli, is as follows:

A measured quantity of sputum is placed in a glass flask with a three per cent. solution of acetic acid and violently agitated until the mucus is decomposed. The mixture is filtered and the filtrate is washed with three per cent. acetic acid. The filtrate, which contains the albumoses and the albumin of the sputum without the mucin, is now treated with sodium hydroxide until it is only slightly acid in reaction. If necessary concentrated saline may be added, after which the albumin may be coagulated by boiling. The albumin may also be precipitated from the strong acetic acid solution by potassium ferrocyanide. In either case the resulting precipitate gives a qualitative and a quantitative test for the amount of albumin in the sputum. Esbach's method, as applied to the urine, may also be employed for an approximate quantitative estimation of the amount of albumin.

This test is far from being absolutely specific for pulmonary tuberculosis, being also positive in a few other conditions, especially congestion and edema of the lungs. But, when we consider the results and figures to follow, we must lay a good deal of stress and importance upon this test, and immediately recognize its value, also its great assistance in the very incipient cases of tuberculosis, where the bacteriological examination of the sputum is usually negative.

Of the 291 cases where both chemical and bacteriological examinations of the sputum were made, seventy-three were positive for both tests, this being twenty-five per cent. of the 291, and eighty-six per cent. of the positive bacteriological cases; ten positive cases gave a faint chemical reaction, constituting eleven per cent of the positive cases; so that in ninety-seven per cent. of the cases, where tubercle bacilli were present in the sputum, a chemical examination for the presence of albumin also proved positive. In three per cent. no albumin was found; I really do not know how to account for this, but the percentage is comparatively so small that it can almost wholly be neglected. In ninety-five cases both tests were found to be negative, constituting thirty-three per cent. of all cases, and forty-six per cent. of those that were negative bacteriologically; of these cases, forty-eight, or fifty per cent., were distinctly tuberculous clinically. In seventy-four cases (twenty-five per cent. of all and

thirty-six per cent. of the negative ones), the chemical examination was distinctly positive, whereas bacteriological examinations were negative; of these, sixty-eight cases, or ninety-two per cent., had positive signs of pulmonary tuberculosis, and the rest were tuberculous suspects. Thirty-six cases were negative for tubercle bacilli and gave a faint chemical reaction; twenty-six, or seventy-two per cent., of these were distinctly tuberculous.

Relation of height of patient to circumference of chest: Normally this ratio is practically two to one. The circumference of the chest is taken at the level of the angles of the scapulae. I took such measurements on 400 of my patients and found that seventy of these, or 17.5 per cent., of all, showed a ratio of about 2.125 to one or more, owing to the diminished circumference of the chest in tuberculous subjects. Of these cases, eighty-eight per cent. belong to stage two, and twelve per cent. to the first stage.

Relation of asthma to tuberculosis. These two diseases have been held by many to be antagonistic, in fact Brügelmann goes so far as to state that it is impossible for any one patient to suffer from both at the same time. In 400 patients that the writer examined during the past year, no less than twenty-eight, or seven per cent., gave a distinct asthmatic history and positive physical findings of pulmonary tuberculosis and asthma; the tuberculous condition apparently followed the asthmatic in twenty-six, or ninety-three per cent., and in two cases the reverse held true.

This paper would hardly be complete without acknowledging my indebtedness to Dr. S. Wachsmann for his active interest and ever willing aid to the writer, and for his kind permission to publish the results.

3390 BROADWAY.

ALKALIES AND HYPERCHLORHYDRIA.

By P. CASWELL TUPPER, M. D.,
New York.

How many patients have said to you: "Doctor, when I get a sour stomach, I am always relieved by taking a little baking soda, because it brings up the gas so readily"? I presume most of you have heard substantially this statement many times. I would like to discuss with you a little demonstration along this line.

I realize that a test tube has not the individuality of a stomach and differs from it in many other ways; still, making due allowance for these differences, I think we may allow a test tube experimentally to represent a certain type of stomach. We will mix up a few c. c. of water with a few drops of dilute hydrochloric acid, and add a drop or two of alcoholic solution of dimethyl. The resultant red fluid, we will put in three test tubes, an equal quantity in each. These will represent three *gas free* stomachs, each containing free hydrochloric acid. Now we will take on a knife blade (we are making the experiment as simple as possible) a pinch of sodium bicarbonate, and add it to stomach No. 1. At once there is a violent efferves-

cence, the fluid bubbles to the top of the tube (it is getting up the gas!), it turns yellow (the sourness is corrected); it then subsides, ebullition ceases, and the contents lie dormant in the lower portion of the tube. The whole reaction occupies but a few seconds. Now we add to stomach No. 2 a pinch of magnesium carbonate, about the same volume as of soda used; for a few seconds the fluid remains apparently unchanged, then follows a mild effervescence, the fluid slowly turns yellow, and subsides as in No. 1.

To the third tube we now add approximately the same volume of light magnesium oxide (calcined magnesia); almost instantly the fluid turns yellow, but its calm surface is undisturbed; this reagent does not "bring up the gas," because in the reaction no gas is formed.

The equations follow:

1. $\text{NaHCO}_3 + \text{HCl} = \text{CO}_2 + \text{NaCl} + \text{H}_2\text{O}.$
2. $\text{MgCO}_3 + 2\text{HCl} = \text{CO}_2 + \text{MgCl}_2 + \text{H}_2\text{O}.$
3. $\text{MgO} + 2\text{HCl} + \text{H}_2\text{O} = \text{Mg}(\text{OH})_2 + 2\text{HCl} = \text{MgCl}_2 + 2\text{H}_2\text{O}.$

By substituting the atomic weights of the elements used, we find that taking sodium bicarbonate as the unit, the neutralizing power by weight of magnesium carbonate equals about 2 and of magnesium oxide about 4. As calcined magnesia is very light and fluffy compared to sodium bicarbonate, and as we often prescribe a loose powder to be taken by volume, i. e., by the teaspoonful or fraction thereof, it is of interest to determine the relative neutralizing power, volume for volume.

One molecule of MgO , weighing 40, neutralizes two molecules of HCl , while one molecule of NaHCO_3 , weighing 84, neutralizes only one of HCl . This led the writer to believe that the MgO is more powerful, volume for volume. However, tests performed with the two salts, as dispensed in this city, failed to substantiate this belief. I will omit the experiment in detail, but will say that the commercial sodium bicarbonate bought from a wholesale chemist neutralized about twice the amount of acid as did an equal volume of calcined magnesia from the same firm.

We have said that a test tube differs from a stomach in many particulars: The tube is cylindrical, and has an unobstructed outlet at the top, an advantage which the stomach lacks. The stomach wall is distensible, more or less, which allows it, to a certain extent, to accommodate the gas formed, but *only* to a certain extent; and, furthermore, the stomach has a delicate mucous membrane lining its walls, a lining which, in the case of an irritable, hypersensitive organ, must certainly resent the violent action of sodium bicarbonate acting on free acid. Furthermore, when we neutralize HCl with soda in a test tube, the affair is finished, whereas a stomach makes its own HCl , makes it only too readily, when belonging to the hyperacid type. Our patriarchs in gastric experimentation seem to differ as to the further production of HCl in a pathological stomach by the action of sodium bicarbonate after that present is neutralized. In the face of this careful and extensive labors, I do not feel competent to venture an assertion in either direction, but it seems a possibility that an organ which upon the slightest irritation, chemical or mechanical, pro-

duces an excess of HCl , might play its favorite rôle of acid production as a result of the profound disturbance and the pressure due to obstructed outlet of gas produced when soda is administered.

I was led to make the foregoing crude experiments by the fact that both in private practice and in the gastric clinic of the New York Hospital Dispensary, about ten per cent. of my patients with excessively acidity receiving sodium bicarbonate in the treatment, gave a history of distress; belching, bloating, sense of weakness, or obscure nervous symptoms, immediately following the ingestion of this drug, in some cases severe flatulence where none had existed prior to the treatment.

When I completed the experiment detailed above, I jumped to the conclusion that MgO , or magnesium hydrate ($\text{MgO} + \text{water}$), was the ideal alkali to exhibit in simple gastric hyperacidity (I was much mistaken, as we shall see presently). I eliminated sodium bicarbonate from my private pharmacopeia (except for lavage and the soda contained in Carlsbad salt), and instituted a routine medication in these cases consisting of calcined magnesia, with a small quantity of bismuth subnitrate suspended in water. I soon noticed that the patients under this treatment, a large percentage of whom were constipated heretofore, no longer needed the Carlsbad salt previously prescribed for this symptom; they were no longer constipated, in fact quite the reverse; flatulence present under former medication containing soda had disappeared in favor of diarrhea, the soluble magnesium chloride formed in the third reaction performing the rôle of a first class saline cathartic. I am still searching for the ideal alkaline mixture, and should be pleased if some reader of this article would help me in the quest. At present, I compromise in the treatment of these cases as follows:

If the patient is constipated at the time of beginning treatment, I prescribe the suspension of magnesia and bismuth, a teaspoonful or less after meals, and one half an hour later, one dose, representing six grains of magnesium hydrate and twenty-two grains of bismuth subnitrate. This is continued for three to five days, and if the evacuations continue too frequent, at the expense of the patient's already reduced weight and strength, I discontinue the foregoing in favor of a powder containing equal volume of magnesia and magnesium carbonate, with a little powdered charcoal, and sometimes a little bismuth subnitrate. It must not be understood that I thus dismiss the symptom of constipation, or that I consider this ever as adequate treatment, but we are discussing here simply the exhibition of alkalis in hyperacidity. As to the formation of concretions, attributed by some authorities to the prolonged use of magnesium oxide, I would say that this result seems impossible to me, provided the clinician has accurately estimated the degree of hyperchlorhydria present from time to time, and has prescribed always less magnesium oxide than the amount able to completely neutralize all acid present, lessening the dose as the condition improves, and discontinuing it altogether when the free acid found at the height of digestion is within normal limits.

A word in regard to the addition of powdered

charcoal to the mixtures: I do not assert any gas absorption by it; it may absorb some; if so, so much the better. One thing it does certainly do, it imparts a gray coloration to the powder or mixture, a factor often of psychic benefit, especially to that morbid patient who broods over his condition and speculates upon the effects of various medications used, a patient not infrequently met with in this line of work.

422 WEST TWENTY-THIRD STREET.

Therapeutical Notes.

Treatment of Eclampsia.—G. Bellingham Smith, in the *Practitioner* for September, 1912, discussing this subject from the standpoint of private practice, states that there are two chief indications for treatment, viz., the convulsive phenomena and the toxemic state. In regard to the first, the drugs most employed are bromide, chloral hydrate, morphine, and chloroform. In mild cases the first two may suffice, but the author believes it best not to waste time seeing whether they will act. Of chloroform and morphine, he much prefers the second; he begins with one half grain, and repeats it in one quarter grain doses, the total amount in the first twenty-four hours not exceeding two grains. If any manipulations have to be carried out, or if the fits are not controlled by morphine, and recur frequently, chloroform should be given.

As regards the toxemia, it is often found that there is almost complete suppression of urine in these cases, generally accompanied by constipation. If the patient is conscious, one drachm of compound jalap powder may be given. With this should be combined free washing out of the bowel with warm water enemata; Tweedy advises that a pint of water be left in the bowel. In the unconscious patient, Smith disapproves of the commonly used croton oil, preferring the introduction into the stomach, by means of a tube, of some jalap powder or magnesium sulphate; this allows of preliminary stomach washing. In addition, normal saline solution should be given subcutaneously, one pint into each axilla; this may be repeated later. Diaphoresis should be secured by means of hot baths, wet packing, or hot air baths; of these, wet packing is most easily carried out in a private house. The fluid lost through perspiration should be replaced by means of rectal injections.

With the aid of these measures, not only may a patient pass through labor successfully, but the fits may disappear before the onset of labor. Regarding operative procedures, Smith points out that the benefit obtained by emptying the uterus has been somewhat exaggerated, as shown by the fact that even where the convulsions begin in the puerperium the mortality is from eight to twelve per cent. When the patient is in labor the advisability of terminating the latter as soon as possible, e. g., by application of forceps as soon as the cervix is sufficiently dilated, is undoubted. As for cases arising during pregnancy, rapid delivery does not give good results when employed as a last resort. By immediate operation, on the other hand, the mortality would appear, from published accounts, to be re-

duced, but the difference is slight and would be more than counterbalanced by the risks attendant on operating under adverse circumstances. Of the various operative methods, vaginal Cesarean section seems to have given the best results. Induction of labor with bougies, etc., is of use only in cases where the convulsions have been controlled.

Arsenic and Other Drugs in Pulmonary Tuberculosis.—Abraham Jacobi, in *Albany Medical Annals* for July, 1912, states that he has convinced himself in a great many cases that in incipient, though well marked pulmonary tuberculosis the prolonged administration of arsenic leads to a diminution in the lung infiltrations, brings about disappearance of elastic fibres from the expectoration, improves the patient's strength, and increases weight. In advanced cases he makes it a rule not to prescribe arsenic when the fever is very high, but to return to it as soon as the temperature tends toward normal; under such conditions even these patients may be improved by the drug. Arsenic favors the proliferation of encapsulating connective tissue. But since the action must be a persistent one, the doses must not be large, from 1/15 or 1/10 to 1/6 grain of arsenic trioxide (arsenous acid) daily for an adult. The preparations used are either the trioxide or Fowler's or Pearson's solution, the dose of Fowler's being three drops and that of Pearson's solution from six to ten drops, three times a day in a few ounces of water after meals. Nausea, colic, diarrhea, or edema of the eyelids is a temporary contraindication to the continuance of the drug. Conjoint administration of a small amount of opium renders it less liable to induce disagreeable symptoms, and in such cases as show diarrhea at an early period, the combination is a particularly happy one. To prevent the effect of arsenic on the gastric glands, which have been known to become atrophic during its use, some hydrochloric acid should be given regularly, or black pepper may be combined with the arsenic in pills on account of its acid producing action.

Jacobi also states that he seldom gives the arsenic without a small dose of digitalis, and never without a guaiacol salt, generally the carbonate.

Treatment of Ulcers in Leprosy.—Wise and Minett, in the *Journal of Tropical Medicine and Hygiene* for September 2, 1912, state that the most effective method of dealing with the ulcerations met with in tubercular leprosy is to scrape them and then apply a wash of 5 per cent. benzoyl chloride in petrolatum.

Collyria in Incipient Cataract.—Chevallereau, at a meeting of the French Ophthalmological Society (*Bulletin médical*, June 15, 1912), stated that iodide collyria were capable in certain cases of arresting the progress of cataract and even, occasionally, of causing opacity to disappear. The concentration of the solution used should be carried up to as high as 0.7 to 0.8 gramme for every ten grammes of solution. Sodium iodide is better borne than the potassium salt, but being less stable it may at length cause, through decomposition, a pigmentation of the conjunctiva similar to that witnessed in argyria.

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COCAINOMANIA AND ITS TREATMENT.

A true cocaineomania, which in the present instance might be taken as differentiated from the cocaine habit in that it embodies the elements of a more or less sudden craze, has developed in some parts of France, particularly in Paris and Lyons—a true epidemic according to André Lautheume in *Revue de thérapeutique* for December 15, 1912. Until recently alcohol, morphine, ether, and a few other agents predominated as psychic intoxicants; at present cocaine leads them all, owing, it is believed, to the ease with which it may be taken—no syringe, no painful needle pricks, no marks on the arms, etc.,—while the pleasurable sensations sought are obtained without a relatively prolonged stage of habituation. Briefly, a mere snuff containing cocaine in suitable quantities suffices for all purposes. This class of cocaine habitués may be readily recognized by their frequent sniffing, their tremors, and the habit of “bug hunting” in the skin of their hands and arms in obedience to abnormal sensations or paresthesias caused by the drug. Hallucinations, phantoms, and a sort of delirium of persecution complicate marked cases and render the victims querulous and frequent visitors to the police stations. A curious symptom is a predilection for rapid progression; the automobile is a boon to these patients, unless, as frequently happens, they over-

look the cost—another cause of trouble with the police, leading often to incarceration in an insane asylum. The nasal cavities sooner or later show a characteristic lesion; necrosis of the septum due to the denutrition caused by the constricting action cocaine has on the local arterioles.

Fortunately, appropriate treatment, when carried out judiciously, soon brings about a cure. An essential feature is removal of the patient from the environment in which the pernicious habit was acquired and sustained, to a place where cocaine cannot be obtained openly or surreptitiously. Attempts to carry out these measures at the patient's own home practically always fail; an asylum alone affords the necessary facilities. Sudden suppression is better borne by these patients than by morphine habitués. When the morbid phenomena are not intense, the patient showing for example but slight dyspnea, palpitations, insomnia, psychic depression, and anxiety, they promptly disappear under complete abstinence, and are replaced by a voracious appetite, followed by an early resumption of normal health. When, however, the case is an advanced one showing cardiac, pulmonary, or renal lesions, abrupt abstinence may entail general collapse, syncope of cardiac origin, and depressive psychic phenomena, melancholia, etc., of a very severe type. Here the dose of cocaine allowed should be only gradually reduced, and the patient meanwhile protected against the foregoing complications. The cardiovascular system especially should be watched and the normal *vis a tergo* of the blood stream sustained with caffeine or sparteine. Quinine is also helpful and may be advantageously given with iron if, as is often the case, anemia is present. The stubborn insomnia which tends so severely to depress the nervous system should be met by the use of trional or other agents which do not depress the circulatory or respiratory system. A most efficient means against the tendency to collapse is a nutritious diet; this the patient soon learns thoroughly to appreciate provided the meals are tempting and to his taste. Small quantities of easily digested food at short intervals are to be preferred. At the end of two weeks, the symptoms due to abstinence will have disappeared. Constructive metabolism should now be favored by means of warm baths, physical exercise, massage, and actinotherapy.

DIETETIC CONTROL IN TYPHOID FEVER.

Until we have a specific antityphoid treatment, the chief art of the physician must be employed in conserving the patient's vitality and in avoiding complications. That a routine, rule of thumb conduct of typhoid cases is not satisfactory is proved

by the mortality of the disease in the past, and the deplorable frequency of complications and relapses. In fever there are two significant modifications of normal metabolism. By virtue of the hyperthermia itself, there is an increased destruction of body tissue proteid. In addition to this, the febrile toxines elaborated in the course of the disease process cause a further toxic destruction of body proteid. F. Voit found that the increased destruction of body proteid due to hyperthermia can be entirely prevented by feeding a suitable quantity of carbohydrate, or of carbohydrate and proteid, and explains the thermic loss of proteid as a result of the quick consumption of the glycogen supply of the body, and the demand of the tissues for a further carbohydrate supply. Since this demand is not met by carbohydrates from the diet, it is supplied by the breaking down of body tissue proteid.

From experimental evidence it seems probable that the febrile toxines stimulate the nerve cells of the midbrain, which react on the medullary centres and so produce hyperthermia. But these toxines, as has been stated, themselves cause a further body proteid destruction, and this destruction cannot be avoided by supplying other food elements from the diet, although it is possible that it may be more or less compensated by regenerative processes in the body. Thus in typhoid fever, where the toxic loss of body proteid is very high, it seems impossible to attain nitrogenous equilibrium, that is, to supply as much proteid in the diet as is used and destroyed in the body.

The dietetic indications from this brief analysis of febrile metabolism are very plain. The energy requirements of the body must be supplied just so far as the body is able to assimilate the nutrition offered it. At least enough proteid must be given to balance the normal daily nitrogenous excretion from the body. The remainder of the diet may include such an amount of fat as will not interfere with digestion or appetite, and a large quantity of carbohydrate.

Von Hösslin states: "Patients with a temperature not above 40° to 40.5° C. can digest and absorb the total quantity of proteid, fat, and carbohydrate which can be given with their diminished appetite, provided the food is administered in the proper form. Temperature and metabolism are only slightly increased thereby." Von Leyden and Klemperer added ten per cent. milk sugar to whole milk. Two litres of this modified milk per diem are nearly sufficient for an adult resting in bed, and usually cause neither diarrhea nor indigestion. An addition of 2.5 per cent. of cream enhances the nutritive value, which can be increased still further by adding a little brandy or sherry. Lusk aptly calls attention to

the fact that whereas the modification of infant food has received great attention in this country, the production of a suitable fever diet has had little notice.

The considerations here outlined have borne good fruit recently in the work of Coleman and Shaffer in typhoid fever patients in Bellevue Hospital. Coleman believes that the 1,000 to 2,000 calories daily of the usual milk diet should be increased to from 3,000 to 5,000. He considers that harmful foods are meats (except small quantities of broths given to stimulate digestion), vegetables having much cellulose, and fruits having much cellulose or small seeds (berries). He has not found any serious digestive impairment in typhoid, and ascribes digestive disorders from food to the manner of feeding rather than to the quantity. The absorption of carbohydrates was practically complete, less than 0.5 per cent. being lost. The average loss of proteid was 7.1 per cent. In the active stage of the disease, with a daily intake of 147 to 200 grammes of fat, the loss of fat was 7.2 per cent. In convalescence, with an intake of 150 to 258 grammes of fat daily, this loss fell to 4.5 per cent. The normal loss of fat on a similar diet in health is three per cent., but may reach over seven per cent. The quantities of fat given caused neither acidosis nor alimentary disorders. Coleman does not assign to his high calorie diet any influence on the length of the febrile stage of the disease, but he asserts a decrease in complications, a distinctly shorter convalescence, and notes a mortality of 8.7 per cent. in the cases on high calorie diet, compared with sixteen per cent. in a group under other treatment. In addition he found it to have a favorable influence on the toxemia, and to cause a rapid disappearance of toxemic symptoms.

Typhoid patients can absorb carbohydrates and proteid as well as normal persons, and can also absorb very large quantities of fat, although the percentage of absorption is somewhat lower in this case, especially early in the disease, than in the normal. The stools of typhoid patients on the high calorie diet closely resemble the normal.

Roughly calculated the high calorie diet for 3,000 calories per diem consists of 1,000 c. c. of milk, 300 to 400 c. c. of twenty per cent. cream, 100 to 200 grammes of lactose, two or three eggs, two slices of toast, and butter. This can be increased in quantity, or boiled rice, oatmeal, mashed potato, cream of wheat, apple sauce, custard, and ice cream may be added. So much reliance does Coleman place on high feeding, that he believes enough food will remove the necessity for hydrotherapy in controlling the toxemia. A plain soapsuds or saline enema is given every morning.

The test of a therapeutic agency is found in its results. Several years' experience by an increasing number of clinicians seems to bear witness to the value of the principles Coleman has laid down. They are based on sound reasoning, and if carefully applied with intensive individual study of each case, should mark a distinct advance in the management of typhoid fever.

STATE HEALTH ADMINISTRATION.

Announcement has been made that a commission headed by Dr. Hermann M. Biggs has been appointed to examine into the present method of public health administration in the State of New York with a view to its reorganization and improvement. Those familiar with the conditions have long realized that such a reorganization was needed to bring rural public health administration in this State even measurably near the standard maintained by almost all the large cities. The personnel of the commission makes it certain that the work in hand will be wisely done.

As we see the problem, we believe that public health administration is regarded too much as a matter of local concern, consequently organization is on far too small a basis. The unit throughout the State is the local board of health, either village or town, and this local board, composed almost wholly of laymen, adopts rules and regulations for the protection of the public health, and also appoints a health officer, to act as the executive officer, who is almost invariably a local practising physician, and therefore largely dependent on the good will of the community for his livelihood. Is it to be expected that this makes for fearless enforcement of the law with an eye single to effective public health work, or that his interests will extend any considerable distance beyond the confines of his own little community?

In an able discussion of the subject before the last meeting of the American Public Health Association, Doctor Bolduan, of this city, advocated a reorganization of rural public health administration along the lines so successfully followed in both Germany and Great Britain. He pointed out that in both of these countries, the unit of administration is far larger than here. The sanitary districts (Great Britain) and the *Kreis* (Germany) correspond roughly in size and population to our counties, having from 20,000 to 100,000 inhabitants. Each district is in charge of a medical officer of health, or in Germany, of a *Kreisarzt*, who is specially trained in public health work, and usually devotes his entire

time to public health matters. His compensation ranges accordingly, but is not less than £500 in Great Britain. With this larger administrative unit, and with no private practice to influence the official actions of the health officer, it is evident that much more effective public health administration is possible. And that it is actually secured is apparent to any one who has examined conditions in Great Britain and Germany.

Whatever plan is finally worked out by the commission we believe it should embrace: 1. Trained public health administrators, devoting full time to their work; 2, administration on larger, probably county, lines; and, 3, a uniform public health law throughout the State in place of local rules and regulations. Just how such a plan can be carried out will require careful study; that the difficulties will be surmounted is unquestionable.

MALARIA NEAR FARMHOUSES.

Senior Surgeon Henry R. Carter, in *Public Health Reports No. 105*, summarizes the information we have concerning the spread of malaria, a disease, as he says, essentially rural in its occurrence, for the benefit apparently of dwellers in the country. The characteristics of the guilty mosquito are fully described as well as its habits, how it travels and breeds, and how its surreptitious nocturnal invasion of houses has led to the bewilderment of men trying to account for an outbreak of malaria where no evidence of the presence of anopheles was discoverable.

The article goes on to describe the measures involving the control of the human host by keeping him under screens and mosquito bars, administering quinine freely, killing the mosquitoes of the sickroom, and rendering possible carriers innocuous by the prophylactic use of the specific alkaloid. To control the insect host, Surgeon Carter advises the destruction of their breeding places by drainage, enabling fish to get at the larvæ, pouring coal oil on larger ponds, cutting down brush and tall weeds about the house, yet planting a screen of trees between possible breeding places and the dwelling, use of screens and mosquito bars, etc. Full instructions are given how to construct the wire screens, including the doors. An interesting point is that collections of dirty water are not to be feared, as mosquitoes will not breed therein. It is to be hoped that some brave pioneer farmer, not susceptible to ridicule, will be found in every infested locality to carry out Surgeon Carter's excellent advice.

A SPURIOUS RELIC OF NAPOLEON.

American physicians who have visited the College of Surgeons in London in the absence of any attendant surgeon and have been obliged hastily to make the rounds with an orderly, will remember

the little vial reverently averred to contain a portion of the intestine of Napoleon, with its contents showing the blue stain of some microscopist of long ago, and the assertion by the attendant that the specimen showed a cancerous growth which demonstrated the cause of Napoleon's death. Dr. Arthur Keith, in the *British Medical Journal* for January 11th, publishes a report of a careful microscopical examination of this fragment of intestine which showed that it contained merely an enlarged Peyer's patch, and, according to the decision of W. B. Leishman, demonstrated only that the original owner was once a sufferer from Malta, or, as it is now called, undulant fever. An editorial article in the same issue of the English official journal, however, maintains that the evidence that this portion of intestine came from the body of Napoleon is quite insufficient and offers abundant proof of the untrustworthiness of the two men, surgeons we regret to say, who presented the specimen to Sir Astley Cooper, who, as well as Sir James Paget, wrongfully diagnosed the lesion as cancerous. In view of the double disillusionment concerning the once apparently important specimen all interest in it vanishes completely.

REST FOR THE WEARY CITIZEN.

Not least among the attractions of Paris are the benches thoughtfully placed on the less frequented streets, whereon the tired wayfarer may rest as long as he pleases. Such benches would supplement to great advantage the restricted park space in New York and other American cities. The lack of resting spots in the metropolis where no fee is exacted, is due evidently to calculation, probably on the part of the people who used to choke up the free drinking fountains. The free seats are not to be placed upon populous thoroughfares, but on side streets and the less busy avenues where they would be highly appreciated, particularly by the poorer women who have to carry infants and baskets. It is surprising that the enemies of the saloon and those who are worried about the tendencies of the moving picture theatres have not appreciated the value of placing such excellent alternatives at the disposal of the public, with their obvious physiological advantages and their healthful invitation to enjoy the fresh air.

THE NEW VOLUME OF THE INDEX CATALOGUE.

After a lapse of over a year the seventeenth volume of the second series of the *Index Catalogue of the Library of the Surgeon General's Office, United States Army*, has been published. It contains the subjects from Suaheli to Testut, and brings the eighth addition to the alphabetical list of abbreviations of titles of medical periodicals. The volume contains 9 and 788 pages and shows the accuracy and clearness of the preceding volumes of the great work.

Medical Law.

VIII. CIVIL MALPRACTICE.

The case of McDaniel vs. United Railways Company of St. Louis, 148 Southwestern Reports 464, represents a settlement that would not stay settled.

The plaintiff had been injured in a street railway accident, having sustained an intracapsular fracture of the surgical neck of the femur. The railway company and the injured passenger effected a settlement, whereby the company paid \$175 and agreed to pay the passenger's expenses at a specified hospital and to have her treated at its expense by a certain surgeon possessing great skill and renowned for the efficacy of his cures of difficult fractures.

Instead of carrying out this latter part of the agreement, one of the surgeon's assistants having about three years' experience took charge of the case, attempted to set the fracture, applied a splint, and apparently remained in charge of the case until the patient was discharged, reporting his treatment to the surgeon, who occasionally saw the patient and inquired how she was feeling, and once put his hand on her hip near the fractured bone. After remaining in the hospital several months the patient was discharged without any union of the bone.

The patient therefore commenced action against the railroad company for failing to carry out its agreement and the jury awarded her a recovery of \$7,500, which judgment was affirmed by the appellate court.

The principal question having a medical aspect which was considered by the appellate court, was whether plaintiff's condition could be attributed to the failure of the surgeon to give to the case his personal attention. In an ordinary action against a physician for malpractice it is necessary for the plaintiff to show affirmatively that his sufferings are due to the want of the requisite degree of care and skill applied in his case, but here no evidence upon this phase of the case was adduced, nor, apparently did the appellate case consider it necessary. The view of the court as expressed by Mr. Justice Norton was as follows:

In other words, it is sufficient if there be such certainty thereabout as satisfies the mind of a prudent and impartial person that the damages sued for may be traced as a reasonable probability to the breach of the contract. Then, too, the law, it has been well said, never insists upon a higher degree of certainty than the nature of the case admits. . . . In almost every case the damages to be measured are more or less uncertain, to a considerable degree; but the question of uncertainty presented here relates to the cause of the damage rather than to uncertainty as to the measure or extent thereof. Therefore, if it may be said that the facts and circumstances in evidence are insufficient to suggest to a reasonably prudent, impartial man that the damages proved flow as a reasonable probability from defendant's breach of the contract, the argument is sound; otherwise, the question was one for the jury. . . . The relevant facts touching this question are as follows: The evidence tends to prove plaintiff was about thirty years of age and possessed the full vigor of young womanhood. It appears she was a seamstress by occupation, energetic, and accustomed to work at that vocation for her living. One witness said she was a woman of good nerve, and several more attest the fact of her good health and vigor. With such a patient it would seem that a proper union of the fractured femur should be provided in due

course by the processes of Nature had the operation of setting and splinting the same been properly effected. Especially is this true in view of the evidence of Doctor Boogher, which goes to the effect that he had had two perfect recoveries in which bony union had taken place in like fracture of the femur in persons of over seventy years of age. The proof is that, after having remained in the hospital for several months, plaintiff was discharged without any union of the bone whatever having been made. One of the experts says in his judgment neither a bony or a fibrous union of the fracture had taken place for the reason that the ends of the fractured bone were not brought in apposition and maintained there as they should have been. Though some two or three years have intervened, plaintiff's limb is still unserviceable because of the nonunion of the fracture. It appears that Doctor Brokaw was a surgeon possessing not only great skill, but renowned, as well, for the efficacy of his cures with respect to difficult fractures; while, on the other hand, the physician who actually attempted to place the fractured ends in apposition, adjust the splint, and treat plaintiff throughout is shown to have been a young man of but three years' experience in his profession. We believe it was competent for the jury to infer from these facts that, had plaintiff been treated by Doctor Brokaw instead of Doctor Klinefelter, a proper union of the bone would have taken place, for, if the evidence on her part is to be believed, her health and condition were most favorable to such a result. Such would seem to be a reasonable inference and not mere conjecture, especially in view of the evidence that two like fractures had made perfect unions in persons over seventy years of age who were treated by Doctor Boogher. Though it be true that in suits for the breach of contract the damages should be traceable to the breach and appear to flow from it as a reasonable probability, it is not essential that they be shown as a certainty to follow from that cause. It will suffice if enough appears in the case to enable the jury to reckon such a result from the common experiences of life through the application of that degree of sense usually possessed by an impartial man of ordinary prudence. . . . Obviously, as said the Supreme Court of New Hampshire, the mere fact that the finding rests upon probability only or is made by drawing inferences from circumstantial evidence will not render it an improper one.

X. THE PHYSICIAN AS WITNESS.

The case of *J. M. Pace Mule Co. vs. Seaboard Air Line R. Co.*, 75 *Southeastern Reports*, 994, passes upon the question of the admissibility of the opinion evidence, which evidence was subject to the well recognized objection that the opinion of the witness cannot be substituted for the functions of the jury.

While in this case the expert was a veterinary surgeon and the subject of the inquiry was the condition of a mule, yet the principle upon which the question was decided was identical with that which would have been applied had the witness been a physician and the subject of inquiry the condition of a human being. In this case, the veterinary practitioner, upon examining the mule in question after its death, removed the skin and found that the body was badly bruised. The internal organs were in a state of congestion and decomposition. After testifying to the condition which he found, he was asked substantially the following question: "State your opinion as to the cause of the mule's death, if you have one based upon your knowledge and experience and your post mortem examination of him?" to which he answered: "My opinion is that the mule was jammed up in the car." In passing upon the propriety of this question and answer, Justice Walker, of the Supreme Court of North Carolina, said:

This evidence was improperly admitted. The question required him to testify, not only as to the condition of the mule when he examined him, which was proper, but

to go further and give his opinion as to the existence of a fact, which was almost, if not quite, the equivalent of the one directly involved in the issue. It would have been competent to have asked him if the death of the mule could have been caused by being jammed in the car, or, if the jury should find from the evidence that the mule had been jammed in the car and had received no other injury, could the death, in his opinion, be attributable to the jamming as its cause; that is, was it sufficient of itself to cause the death.

A question similar to the one admitted in this case by the court was asked in *Summerlin vs. Railroad*, 133 N. C. 551, 45 S. E. 898, and excluded by the court, and we sustained the ruling upon the ground that the witness was called upon to state a fact of which he had no personal or competent knowledge, and not merely the opinion of an expert. The opinion of the witness should be based upon facts admitted or found, or upon his personal knowledge, and not upon the assumption of the fact. The question should, therefore, be hypothetical, or rather suppositious, in form, following the precedents as settled by our decisions: *State vs. Bowman*, 78 N. C. 509; *State vs. Cole*, 94 N. C. 958; *State vs. Wilcox*, 132 N. C. 1120, 44 S. E. 625; *Summerlin vs. Railroad*, supra. The court in *Hitchcock vs. Burgett*, 38 Mich. 501, held that "a physician cannot be asked his opinion as to the cause of an injury, judging merely from the condition in which he found the patient, and without any knowledge as to how it took place." We conclude that there was error in admitting the question and answer, over the objection of the defendant, which was made in the proper way and in due time.

News Items.

Lutheran Hospital Pavilion Dedicated.—The formal opening of the new Ear, Nose, and Throat Pavilion of the Lutheran Hospital, situated on East New York Avenue, Brooklyn, took place Sunday, January 19th. The new building, which cost \$20,000, is two stories in height, and is well equipped with all modern appliances for the proper treatment of patients.

Plan Fellowship in Women's Medical College of Pennsylvania.—To honor the memory of Dr. Hannah T. Croasdale it is proposed to establish a fellowship in the Women's Medical College of Pennsylvania, and the committee having the matter in charge invites subscriptions to the fund which will be known as the Hannah T. Croasdale Fellowship Fund. Contributions should be sent to the treasurer of the fund, 460 Bullitt Building, Philadelphia.

Smallpox in the United States.—During the month of November, 1912, there were reported to the Public Health Service, Washington, D. C., 22 cases of smallpox in the State of Alabama, with one death. During December, 35 cases were reported in Arizona, 3 in Connecticut, 46 in Maine, 9 in Maryland, and 87 in Michigan. One death was reported in Maine. On January 15th the secretary of the Maryland State Board of Health reported the occurrence of 5 additional cases in Alleghany County.

A Merger of Medical Colleges.—The two medical colleges of Richmond, Va., the Medical College of Virginia and the University College of Medicine, have been consolidated. The new institution will be chartered under the name of the Medical College of Virginia, and will embrace the plants and equipments of the Memorial Hospital and the Virginia Hospital, in addition to the two colleges. The merger will go into effect legally in a few days, but the actual consolidation will not take place until the end of the school year.

Medical Club of Philadelphia.—President Taft was the guest of honor of the Medical Club of Philadelphia, at its annual meeting, held on the evening of January 17th. About six hundred members of the club were present to greet the President, who spoke on hygienic conditions in the Philippines and praised the medical profession for the work done by them in the Canal Zone, which made possible the construction of the Panama Canal. Officers were elected as follows: President, Dr. James C. Wilson; first vice-president, Dr. Wilmer Krusen; second vice-president, Dr. McCluney Radcliffe; secretary, Dr. William S. Wray; treasurer, Dr. Lewis H. Adler, Jr.; governor, Dr. S. Lewis Ziegler; directors, Dr. Clarence P. Franklin, Dr. G. Morton Illman, Dr. John W. West, Dr. Ellwood R. Kirby, Dr. William Duffield Robinson.

Osteopaths Fighting for the Privilege of Signing Death Certificates.—The osteopaths of New York were given a hearing before the Board of Health on January 21st for the purpose of urging the board to amend Section 163A of the Sanitary Code, which prevents an osteopathic physician from signing a death certificate. The measure giving them the necessary authority to sign death certificates is opposed by representatives of the medical societies of New York and Queens counties. The board reserved its decision for two weeks.

Medical Society of the Missouri Valley.—The spring meeting of this society will be held in Kansas City, Mo., on March 20th, 21st, and 22d, under the auspices of the Jackson County Medical Society. The third day of the meeting will be devoted entirely to clinics in the various hospitals, and a symposium on cancer, a dinner at the Coates House, and an address by Surgeon General Blue, of the Public Health Service, will be features of the first day. A complete programme will be issued shortly. The local committee of arrangements consists of Dr. H. E. Pearse, Dr. R. L. Sutton, and Dr. E. G. Blair.

Philadelphia County Medical Society.—At the annual meeting of this society held on the evening of January 15th, Dr. Charles Codman was elected president on the second ballot, none of three candidates for the office receiving a majority of votes on the first ballot. Other officers elected were: First vice-president, Dr. M. Howard Fussell; associate vice-presidents, North Branch, Dr. Jesse O. Arnold; South Branch, Dr. John D. McLean; Kensington Branch, Dr. Joseph A. Moore; West Philadelphia Branch, Dr. G. Mason Astley; Northeast Branch, Dr. Samuel Bolton; Northwest Branch, Dr. George A. Cameron; Southeast Branch, Dr. Simon Wendkos; secretary, Dr. William S. Wray; assistant secretary, Dr. Arthur H. Hopkins; treasurer, Dr. Edward A. Shumway; censor, Dr. William M. Welch; directors, Dr. Henry Leffmann, Dr. John F. Roderer, and Dr. John J. Robrecht.

Cerebrospinal Meningitis Epidemic.—Cerebrospinal meningitis has become epidemic in certain localities in Arkansas, Tennessee, and the southern part of Illinois. In Arkansas 25 cases, with 17 deaths, were reported at Lepanto, Poinsett county, during December and the first six days of January, and a few sporadic cases have been notified in other parts of the State. In Tennessee there were 108 cases, with 47 deaths, reported in Dyer county to January 13th. In Lake county there were 13 cases, with 9 deaths, to January 13th. In Carroll county there were 4 cases during the two weeks ended January 11th, with sporadic cases elsewhere in the State. There were thirteen counties in the State in which one or more cases were reported during the month ended January 14th. In southern Illinois there were 11 cases, with 7 deaths, reported at Dale, in Alexander county, to January 10th. Cases have also been reported at Cairo. Considerable agitation has arisen in connection with the appearance of the disease, and certain communities have established quarantine against other communities.

Medical Society of the County of New York.—A stated meeting of this society will be held in Hosack Hall, New York Academy of Medicine, Monday evening, January 27th, at 8:15 o'clock. The first item on the programme of the scientific session is the address of the retiring president, Dr. Charles Gilmore Kerley, followed by the address of the president elect, Dr. Brooks H. Wells. Dr. S. R. Klein, of Wakefield, N. Y., will read, by invitation, a paper on the Practical Value of the Negri Bodies from a Diagnostic Standpoint, which will be discussed by Dr. George G. Rambaud, Dr. Anna W. Williams, and others. A paper on the Water Trap Stomach, with diagnosis by means of the x ray, will be presented by Dr. George R. Satterlee and Dr. Leon T. LeWald, with a lantern slide demonstration by Doctor LeWald. A general discussion will follow, among those taking part being Dr. E. W. Caldwell, Dr. John Douglas, Dr. Burton J. Lee, and Dr. H. D. Senior. Dr. Adoniram J. Quimby will present a communication on Radiographic Evidence of Gastrointestinal Stasis, which will be elaborately illustrated with lantern slides. Attention is called to the fact that the programme of the scientific session of the February stated meeting of this society, to be held on the evening of February 24th, will be devoted to a consideration of the report of the Committee of Fifteen upon Hospital and Dispensary Abuse. Dr. William S. Thomas is chairman of this committee.

Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on February 15th is that of assistant superintendent of nurses, Craig Colony for Epileptics, Son-Yea, N. Y. The position, which is open to women only, carries a salary of \$900 and maintenance. There will also be an examination for the position of physician to the Cohoes Jail, Albany County, with a salary of \$300. Applications must be filed on or before February 7, 1913. For particulars regarding the scope of the examinations and for the proper application blanks address the State Civil Service Commission, Albany, N. Y.

Gifts and Bequests to Hospitals.—By the death of Mrs. Anna R. Rice, the Memorial Hospital of Worcester, Mass., will receive \$24,000, by the terms of the will of Mrs. Susan B. Thompson, who died ten years ago, making Mrs. Rice her sole beneficiary.

The Clinton Hospital Association, Clinton, Mass., is named sole legatee in the will of George H. Chace, of Harvard, and Dr. W. P. Bowers, president of the association is named executor. It is believed that the estate is valued at nearly \$30,000.

Miss Dessie Greer, who died in New York on January 3d, left \$100,000 in trust to Miss Trimmer, and after her death \$10,000 will go to Mount Sinai Hospital, and \$90,000 to the American Museum of Natural History. Miss Greer also left \$10,000 in trust to Miss Louise Simmons, and upon her death this sum will go to the New York and Roosevelt hospitals.

The Tuberculosis Preventorium for Children, at Farmingdale, N. J., recently received a gift of \$10,000 from a woman who does not wish her name made public. The money will be used to make up the deficit of the past fiscal year.

Free Administration of Diphtheria Antitoxine Discontinued by the Department of Health.—Announcement is made by the commissioner of health of the city of New York that on and after February 1, 1913, the present system of free administration of diphtheria antitoxine and the performance of intubation at the homes of patients by inspectors of the Department of Health, at the request of attending physicians, will be discontinued. After that date, when it becomes necessary to administer antitoxine or perform intubation in any case of diphtheria, the patient will be removed to one of the hospitals of the department for further observation and treatment. The antitoxine may still be obtained, free of charge, by physicians from supply stations at drug stores for use where payment for the same by the patient would be a hardship. The free administration of antitoxine and the performance of intubation were begun by the department of health in 1895, the objects in view being not only the cure and the prevention of the spread of the disease, but also the education of the medical profession and the general public. These ends have been accomplished, as the records show a very low death rate from the disease and also that at the present time practically every case of diphtheria is treated with antitoxine.

Personal.—Dr. Willis E. Ford, for many years medical director of St. Luke's Hospital, Utica, N. Y., has resigned, and Mr. George W. Wilson, formerly assistant superintendent of Roosevelt Hospital, New York, has been appointed to succeed him. Doctor Ford will remain a member of the medical board.

Dr. Nathan R. Gorter has been appointed commissioner of health of Baltimore, to succeed Dr. James Bosley, who died recently.

Dr. T. B. Smith, city bacteriologist to the Lowell, Mass., board of health, has been named by Governor Foss to succeed the late Dr. Robert E. Bell as assistant medical examiner for the Lowell district.

Dr. G. B. Young has been reappointed commissioner of health of Geneva, N. Y., for a term of five years, and Dr. C. D. McCarthy, as health officer for a term of three years.

Dr. John R. Slaterry, of South Boston, has been elected superintendent and associate physician in chief to the St. Elizabeth's Hospital, Boston, and will have much to do with the arrangements for the new hospital buildings at Brighton. Dr. M. J. Cronin, of Boston, has been reelected assistant physician in chief, and Dr. Edward A. Supple, assistant surgeon in chief.

Dr. Francis A. Lane has been appointed a member of the Boston Board of Health, to fill the vacancy caused by the retirement of Dr. J. J. Hooper.

Pith of Progressive Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

December 3, 1912.

Direct Röntgen Pictures without the Use of Plates.—Ilufnagel found that because of advanced and perfected technic, direct Röntgen pictures have become practical on highly sensitive bromide of silver paper. The advantages over plate pictures are manifold, as they are cheaper and take less time, since no fixation baths are required and the drying of the plates is dispensed with.

Dietetic Treatment and Diet Kitchen.—Sternberg calls attention to the beneficial influence of pure olive oil in certain gastric and intestinal disturbances, but the oil being repulsive to most patients cannot be swallowed. A palatable mayonnaise can be made of it by adding to one tablespoonful of the oil the yolk of one egg, the juice of one lemon, salt, and ice, and mixing the same thoroughly.

Dysbasia angiosclerotica.—Pick reports thirteen cases of dysbasia angiosclerotica. All occurred in males; two under fifty years of age, the rest over fifty. Six were heavy smokers, seven were light smokers. There were typical symptoms in all cases; motor, vasomotor, and sensory disturbances in the upper and lower extremities when walking, cessation of these disturbances when the limbs were at rest. The condition is without doubt dependent upon a pathogenic change, thickening of the walls of the arteries by chronic poisons, such as nicotine, lead, etc., which thickening prevents the necessary amount of blood from flowing to the muscles of the extremities to nourish them. The author obtained best results under negative pressure respiration. When arteriosclerosis was present iodine vapor inhalations proved valuable, having two advantages over its internal administration, namely, producing no symptoms of iodine poisoning and no gastric disturbance.

Intestinal Symptoms in Basedow's Disease; Difficulty of Diagnosis.—Kolb describes the case of a man, forty-five years old, who was operated on for a large substernal goitre. For the past fifteen years he had had severe unappeasable attacks of diarrhea which ceased promptly after the strumectomy. This relief, setting in immediately after operation, proved that the diarrheas were occasioned by Basedow's disease. Therefore, in all cases of diarrhea that will not yield to treatment and show objectively no abdominal findings, the possibility of an incipient Basedow's affection must be kept in mind.

Spontaneous Cure of Appendicitis.—Deppe reports six cases of gynecological operations which on inspection of the appendicular region revealed a condition of spontaneous healing of inflammatory appendicular processes by adhesions, scar tissue with shrinkage, or self amputation.

Complete Gangrene of the Mamma in Puerperal Sepsis.—Bamberger tells of a secundipara, twenty-six years old, in whom, after a normal delivery, high fever developed and prevented the child from being placed to the breast. A painful swelling of the left mamma was incised radially in the outer

lower quadrant. No pus was obtained, only a turbid serous fluid. Three days later a blue black discoloration of the whole mamma appeared, and the general symptoms of a severe sepsis. Amputation of the whole breast was performed. Death occurred six days later with symptoms of a general sepsis.

Diagnosis of Enlarged Bronchial Glands in Children.—Zabel says that for the diagnosis of this condition in general practice d'Espine's spinal auscultation of the whispered voice is of paramount importance; it gives results when other methods fail. Koramy's spinal percussion is less valuable, but gives positive results when the glands in children are much enlarged. The general symptoms and the whole clinical picture must also be taken into account.

December 10, 1912.

Crescendo Murmur in Mitral Stenosis.—Gebhardt tries to explain the typical murmur in mitral stenosis, its causes, reasons for interruption, and cessation at times. In most cases where the pulse is regular, it is due to a contraction of the auricles and its characteristic quality is given by the related action of the ventricle.

Action of Morphine, Opium, and Pantopon on the Movements of the Alimentary Canal in Man and Animals.—Stierlin and Schapiro studied the effects of these drugs on the alimentary tract of man for two years, and found that morphine acts very differently upon the stomachs of various individuals. An average dose in a young person delays for hours the emptying of the stomach contents, sometimes to twice the normal extent. In adults the action on the stomach is less pronounced. In two cases of excessive motility of the stomach the evacuation of the contents was even less rapid than with opium. In the small intestine the forward movement of the contents was delayed for hours (maximum seven). It seemed as if the contraction of the sphincter ileocæcalis formed an obstruction. The tonus of the small intestine showed no change. In many cases widely dilated coils were visible by the side of contracted ones. Even large doses had no effect upon the large intestine, nor was the tonus influenced. Similar to the action of morphine were the actions of opium and pantopon. In chronic diarrheal enteritis, with strong excessive motility of the small and large intestine, opium causes a delay in the onward passage of the contents of the small intestine, especially in the lowest coils, while the contents of the colon to the beginning of the sigmoid flexure were passed on with the usual rapidity. The sigmoid flexure remained filled a long time, corresponding to the large, delayed defecation. The constipating effects of the opiates cannot be attributed solely to the decreased motility of the stomach and small intestine. Inhibition of the defecation reflex centre with the consequent collection of the feces in the sigmoid flexure must be taken into account. In dogs, on the other hand, the varying doses of morphine and pantopon contracted the coils of the small intestine, while those of the whole colon were widened with the obliteration of the circular bands.

December 17, 1912.

Spirochetes in Urine in Syphilitic Nephritis.—Vorpahl believes that every syphilitic inflammatory

kidney which is the result of a fresh syphilitic process can be advantageously treated with mercury. It is immaterial whether the process is due to an early or the tertiary stage.

Hypophysis Extract in Practical Obstetrics.—Hengge reports twelve labor cases in which pituitary gland and pituitrin were administered, with the following advantages: 1. The labor was perceptibly shortened, which in indicated cases was a great advantage to the mother. 2. No untoward effects were observed for mother and child. 3. In cases where the disproportion between the size of the head and pelvis was not too great the increased pains forced the head into the pelvis, and any operative procedure was then more easily performed with much less danger to mother and child.

December 24, 1912.

New Subcutaneous and Intramuscular Cathartic.—Credé, after four years of experimentation, has perfected for hypodermic use sennatin, a preparation from senna leaves, which gave excellent results in 300 cases of obstipation of various kinds, paresis, meteorism, etc. It is a dark, clear, durable, sterile fluid, nonpoisonous, even in large doses of five grammes. Sennatin stimulates peristalsis strongly, so that in all cases gas escapes, and in cases where the mechanical obstruction is not too great, defecation occurs. Two grammes is the normal dose for an adult. Narcosis delays the action for five or six hours.

December 31, 1912.

Serum Therapy in Melæna neonatorum.—Franz shows that the good therapeutic results obtained in the treatment of hemorrhage in the newborn with serum, human, horse, rabbit, cow, sheep, diphtheria, or streptococcic, and the harmlessness of its application should stimulate to further study, so that the high mortality from this disease can be decreased.

ZEITSCHRIFT FÜR UROLOGIE

Volume VI, No. 7.

Vesical Malacoplasia.—Waldschmidt describes two cases, one in a child of nine years and the other in a woman of seventy-eight. These peculiar growths have been found only at autopsy. They are new growths, evenly distributed throughout the bladder, of mushroom form and bluish in color. Their dimensions vary from the size of a pea to that of a quarter of a dollar. They are not caused by cystitis, because cystitis always is secondary. They are not neoplasms, because one sees in them no cellular proliferation.

A New Lithotrite.—Young has made a combination instrument which allows of litholapaxy and by means of a tube in the lithotrite, either cystoscopy or evacuation of the stone fragments.

Volume VI, No. 10.

Malignant Tumors of the Testicle.—Vecchi reviews thirty-one cases of tumors. Of these twenty-four were large celled tumors which include both carcinoma and sarcoma of previous writers. The tumors are most commonly found between the ages of thirty and forty years, on the right side fourteen times; on the left ten; never bilateral. The epididymis is usually extensively involved, the cord spared. When the spermatic cord was involved pain was always present. Metastases occur through the

lymph channels, in the lumboaortic lymph glands. Operative treatment is castration and high excision of the spermatic cord. The lumboaortic lymph glands should not be excised as a rule at the time of operation because of the severity of this operation and also because of the probabilities of other metastases.

LYON MÉDICAL.

December 22, 1912.

Emotion and Epilepsy.—Jean Lépine maintains that all forms of epilepsy, including that which appears to be of emotional origin alone, and the mixed varieties formerly classed as hystericepilepsy, are the result of not one, but several coexisting factors, of varying relative importance and variously combined. Among these, however, three may be said to predominate: The cortical trouble, evidences of which may be detected even in emotional cases; the general toxic factor, usually of gastrointestinal origin; and circulatory instability, especially such as is manifested in sudden marked alterations of equilibrium in this system, which may be the result either of physical exertion or of emotion. In emotional epilepsy it is not the emotion itself which gives rise to the convulsive seizure, but the circulatory changes occurring in association with it.

PRESSE MÉDICALE.

December 14, 1912.

Pleximetric Auscultation.—C. Fernet emphasizes the value of auscultatory percussion in the early diagnosis of apical tuberculosis or pneumonia. He places the bell of the stethoscope over the supraspinous or infrapinnous fossa and percusses the clavicle and first and second ribs anteriorly. Normally, the sound produced consists of two phases, a sudden, tapping sound of brief duration corresponding with the impact of the finger against the bone, and a more or less prolonged metallic, vibratory sound immediately following. Wherever the lung apex is solidified sufficiently to lose its normal spongy character, on the other hand, the second vibratory phase of the sound is no longer heard, probably owing to early arrest of the vibrations of the bone percussed by the inelastic lung tissue. Beside being of value to confirm the results arrived at by independent percussion and auscultation, the procedure described yields far more reliable information than in those cases where induration is localized in the centre of the upper lobe and where it is surrounded by a zone of emphysema. The same is true of central, "latent" pneumonias in the upper pulmonary lobes of old individuals, alcoholics, and cachectics in general. An additional advantage of the procedure is that it does not require cooperation or any effort on the part of the patient.

December 18, 1912.

Sedative Action of Small Doses of Sodium Iodide.—J. L. Champion asserts that subcutaneous injections of a dose not exceeding 0.02 gramme of pure, desiccated sodium iodide, while without any action under normal conditions, are very effective in relieving pain of various sorts, as well as vascular or bronchial spasmodic conditions. This applies to intercostal neuralgia and the neuralgia accompanying grippe, the initial pain in

pleurisy and pneumonia, lumbago, sciatica, certain forms of headache, and the pain arising from sinusitis and iritis. The measure sometimes proved effective in cardiac palpitation, the dyspnea of asthma and emphysema, acute pulmonary edema, post-traumatic vertigo, and conditions resembling angina pectoris. The most marked evidence of the sedative effect of the iodide was seen in cases of acute tenosynovitis, anal abscess, quinsy, and mammary abscess, in which the pain was so obtunded as to permit of sleep on the following night. In a few cases a febricula was observed to follow the injection of iodide.

SEMAINE MÉDICALE.

December 11, 1912.

Peritoneal "Gelatinous Disease" of Appendicular Origin.—Lejars reports three cases of "pseudomyxoma" of the peritoneal cavity, all of which ended in recovery. In the one case in which the appendix was examined at operation, this organ was found enlarged, cystic, and perforated. Such cases might easily suggest colloid cancer of the peritoneum, but where the perforated cystic appendix has been the origin of the accumulation of mucoid material in the peritoneum, malignancy is rarely associated. Hueter has reported one case in which "gelatinous disease" was found in combination with carcinoma of the appendix; but with the exception of similar rare instances, gelatinous disease arising from the appendix, in contrast with that due to ovarian cysts, is of benign nature. If appendectomy is done and the mucoid material evacuated, recovery without difficulty of any kind ordinarily takes place. In one of the author's cases, the swelling caused by the material subsided completely after operation, although the appendix had not been removed and the pseudomyxoma only in part evacuated.

REVUE DE CHIRURGIE.

November, 1912.

Pathogenesis and Treatment of Traumatic Myosteomata.—A. Lapointe believes that the theory which accounts for the formation of myosteomata after traumatism through a process of myositis ossificans, i. e., through ossification of the connective tissue of the muscle subjected to trauma, holds good not only for free myosteomata, as is now generally accepted, but also for myosteomata adherent to bone. The theory of periosteal origin applies only to certain cases of subperiosteal ossification, which should be clearly distinguished from the others. In the treatment, conservative measures, recently advocated by many, appear to have been successful mainly owing to a spontaneous retrogression of the growth, which, indeed, does sometimes result ultimately in a return of sufficient function. Excision, from six to eight weeks after the traumatism is, however, the treatment of choice in cases of myosteoma uncomplicated by ossifying peri-arthritis of the neighboring joint. Where the latter condition is associated, as is frequently the case after dislocations and sprains of the elbow joint, excision of the growth alone is insufficient and useless; where the loss of function is severe and marked, resection of the joint may have to be considered. In removing myosteomata, the mus-

cular tissue surrounding the growth should be spared as much as possible, and where the mass is adherent to bone, removal of the periosteum and injury to the compact bony tissue should be avoided. Lapointe reports a case of myosteoma of the thigh in which, although a small recurrent growth appeared after excision, the perfect functional result previously obtained persisted.

Synovitis Due to Sporotrichosis.—H. Gougerot and G. Lévi-Frankel point out the fact that sporotrichotic synovitis may resemble acute synovitis of pyogenic origin, subacute gonococcal synovitis, and chronic tuberculous synovitis. The diagnosis is easily made by culture, agglutination, or complement fixation methods, and the readiness with which multiple foci disappeared under potassium iodide in a case reported by the authors leads them to emphasize the importance of differentiating this form of arthritis from the tuberculous variety.

Third Tibial Fragment in Malleolar Fractures.—Viallet concludes from a study of a number of x ray plates and some clinical observations that the breaking off of a third fragment at the posterior border of the lower extremity of the tibia does occasionally occur in fractures at the ankle. A profile radiogram is not sufficient, however, to prove its presence, as a fragment which appears posterior in such a picture may in reality be external. Certainty may often be reached by means of a view taken anteriorly, but sometimes, especially where the fragment is but slightly displaced, a third plate, taken from an intermediate angle, and the use of stereoscopic radiography, may be necessary.

RIFORMA MEDICA.

December 14, 1912.

The Use of Camphorated Oil by Hypodermic Injection.—L. Fornaca and R. Lanza, after an exhaustive work on animals and observations on patients, come to the following conclusions: Camphor has no action whatsoever on the virulence and cultures of the pneumococcus, *Bacillus coli*, *Bacillus typhi*, and streptococci. Camphor administered as camphorated oil in doses of from 0.2 to 0.4 gramme in 0.5 c. c. of olive oil has a positive and rapid action on the vascular pressure and on the viscosity of the blood; such action is not present or is not so marked when doses are increased up to 1.4 of camphor in five to twenty c. c. of olive oil. Therefore as a conclusion on the therapeutic value of camphor the authors say that the use of large doses is to be abandoned, and that small and repeated doses, when necessary, are very valuable and should be recommended.

BRITISH MEDICAL JOURNAL.

January 4, 1913.

Insect Porters of Bacterial Infections (Lecture I).—C. J. Martin reserves the term porters to express the rôle played by insects in the transmission of disease organisms without the insect itself being a host. While flies have been shown to play a very important part in the dissemination of typhoid fever in the case of the United States Army when in camp, it is almost conclusively proved that such is not the case in cities and towns where the facilities for the disposal of sewage are good. Here the dissemination by flies is

of very minor importance. Careful statistical records and experimental studies as to the relation between flies and diarrheal diseases of children show: 1. The fly porter hypothesis is the only one which offers a satisfactory explanation of the extraordinary dependence of the epidemic upon the accumulated effect of temperature. 2. It explains the spread of infection to neighboring children who have had no direct personal contact with the infected child. 3. The peculiarities of the relation in time between fly prevalence and the epidemics in different localities are not inconsistent with the view that fly carriage is essential to epidemicity. No other interpretation at present forthcoming is nearly so satisfactory, and it is at least worthy, in the meantime, to guide our efforts at prevention.

Primary Sarcoma of Both Biceps Muscles.—E. Scott-Carmichael reports the case of a man, fifty-six years of age, in whom developed symmetrically placed swellings in the biceps of both arms. These tumors gave no symptoms, but it was discovered that one was a round celled sarcoma. Both were removed while still encapsulated, and the patient has made a good recovery and shown no signs of any recurrence. The muscles were preserved so far as possible and much hypertrophy of the portions left has taken place so that the patient has still very fair strength.

LANCET.

January 4, 1913.

Recovery from Streptococcal Infective Endocarditis.—H. Hemsted's patient suffered from a streptococcal infection of the endocardium engrafted upon a congenital defect, the infection arising from a tooth. Her disease was marked by very frequent and numerous pulmonary emboli, with few in other viscera, hence the lesion was probably in the right heart. In spite of her condition she went through the greater portion of a pregnancy and was delivered of a 6.5 months child. Her condition became serious with extreme loss of weight and strength, and remained so until treatment was started with autogenous vaccines. The infecting organism was *Streptococcus conglomeratus* and it could be isolated in pure culture from the blood, and in impure culture from the sputum after an infarction had occurred. The use of the vaccine seemed to turn the tide of events in her favor, but alone was not successful. An immune serum was prepared from her organism by inoculation into a horse and this, in addition to the vaccines, brought about a complete recovery.

Glycosuria in Tuberculous Meningitis.—R. S. Frew and A. E. Garrod examined forty-one cases and found a considerable glycosuria in fifteen, or 36.6 per cent., at some time in the disease. Some trace of reducing agent was found at a corresponding period of the disease in eleven of the remaining cases. In all of the fifteen patients the glycosuria first appeared within ninety-six hours prior to death with a single exception, in which it was found as early as nine days before the fatal termination. In no case did the glycosuria disappear after it had developed. Clinically the glycosuric cases showed no differences from the nonglycosuric cases, and sex and age were also without influence. At autopsy

no characteristic lesion could be found in the pancreas, thyroid, or adrenals, and the distribution of the tuberculous lesions of the meninges bore no apparent relation to the occurrence of the glycosuria. In a series of cases fatal from tuberculosis without meningitis no sugar was ever found in the urine. No structural lesion could be found in the fourth ventricle to account for the occurrence of the sugar. Increase of the endocranial pressure does not seem to be the cause, for in other types of meningitis this pressure is not infrequently higher and yet there is no glycosuria. Nevertheless the authors believe that the glycosuria has its origin in a nervous lesion, though such cannot be located as yet.

Treatment of Pulmonary Tuberculosis with Small Doses of Tuberculin.—N. D. Bardswell used residual tuberculin in doses of one one thousandth up to one six hundredth mgm., and was unable to detect any difference whatever in the progress of the cases treated with tuberculin as compared with the progress of similar types of cases, who, living under precisely similar conditions, were not having tuberculin. In the tuberculin treated cases it is to be noted that opsonic readings showed good immunizing responses. Bardswell regards tuberculin as an absolutely negligible factor in the treatment of pulmonary tuberculosis.

Preliminary Inquiry into Value of the Complement Fixation Test in Tuberculosis.—L. S. Dudgeon, W. O. Meek, and H. B. Weir investigated 131 cases of pulmonary tuberculosis, and of 102 patients undergoing treatment without tuberculin the reaction was present in eighty-six. In every patient who was being treated with tuberculin or bacillary emulsion the reaction was positive. In nineteen arrested cases in which the disease had been quiet for periods from a few months to seven years the reaction was positive in fourteen. The intensity of the reaction did not appear to depend in any way upon the extent or chronicity of the disease, nor on the general condition of the patient at the time of the examination. In the majority of the more chronic cases, however, the reaction was weak. In the patients who had recently received tuberculin injections the reaction was strong in the majority, and appeared to vary in strength directly with the amount of tuberculin which had been administered. Nine healthy contacts, persons engaged for some time in the care of tuberculous patients, were tested and none gave any reaction.

Radical Operation for Malignant Disease of the Testis.—Seton Pringle makes a racquet incision, encircling the diseased area and extending up the inguinal canal. The tumor with all of its coverings is then freed, along with the cord, up as far as the inguinal ring. The incision is next prolonged parallel to Poupart's ligament and then upward to a couple of inches below the umbilicus, and carried through all of the layers of the abdominal wall down to the peritoneum. The peritoneum is not incised, but is stripped up from the iliac fossa and posterior abdominal wall and retracted well inward. The vas is followed deeply into the pelvis, ligated, and divided. The fascia covering the psoas is next divided well to the outer side of the spermatic vessels and up to the renal vessels. The sheet of fascia lying to the inner side of this incision, along with

the spermatic vessels, fat, and lymphatic glands, are dissected up from the underlying muscle as far as the aorta. This is then cleared from below the renal vessels down to its bifurcation. In this way the testis, cord, inguinal glands, spermatic vessels, psoas fascia, lymphatic channels, and lumbar glands are all removed in one piece without traversing the peritoneum. The peritoneum is allowed to fall back into place and the wound is closed, leaving a drain beneath the peritoneum for a few days.

DUBLIN JOURNAL OF MEDICAL SCIENCE.

December, 1912.

"Vitalism" in the Practice of Medicine.—O'Carroll objects to the mechanical view of life that holds "that all changes in living substance are brought about by ordinary chemical and physical forces." He believes that while the living organism is subject to all physical forces, it has a force of its own—a vital force which determines it to preserve its own individuality. This term is not, in his opinion, an expression of ignorance, but is the name of a force present in each individual structure of the body which determines it to preserve its own existence, while at the same time it is dependent for perfect function on the health of other structures that go to make up the organism. In disease it commonly happens that structures and tissues fail in proportion as they are more highly specialized, or have been later in development, but at each stage of degradation defensive works are set up by tissues lower or simpler in structure and of older birth, so that the most ancient of our tissues are the last to die. A good deal of the essence of a scientific treatment of disease consists of the full use of these lower defenses before an attempt to rehabilitate the higher positions that have been put out of action. He goes on to show that social and moral qualities also develop from this vital force, and concludes: "To say that such qualities—defensive, social, and moral—are explicable on chemical grounds accounts for such change no more than 'vitalism' does, and it leaves us with the uncomfortable feeling that while it deprives the term *chemical* of all definite value, it robs our conception of life of all that it connotes in the long story which begins at or before the ameba and ends with human civilization."

GLASGOW MEDICAL JOURNAL.

December, 1912.

The Pernicious Vomiting of Pregnancy.—J. W. Williams maintains that the underlying factor in all cases of vomiting of pregnancy is probably an imperfect reaction on the part of the mother to the growing ovum. In most cases this is only a predisposing cause, while a reflex or neurotic influence is the exciting factor, and cure usually follows its removal. He divides the cases into those of reflex, neurotic, and toxic vomiting, and considers the neurotic the most common, the reflex the least so, and the toxic the most serious. Pronounced toxic vomiting is accompanied by characteristic lesions and profound changes in metabolism. The significance of a high ammonia coefficient is not specific. It may be a manifestation of toxic vomiting, of starvation following neurotic vomiting, or of an acidosis due to various causes. It should

be regarded merely as a danger signal, while the differentiation between the various types is possible only after careful clinical observation. If improvement does not promptly follow appropriate treatment, the existence of toxic vomiting should be assumed and abortion promptly induced. In the absence of genital lesions a low ammonia coefficient indicates neurotic vomiting which can be cured by suggestion and dietetic treatment, no matter how ill the patient may appear to be. In primiparous women vaginal hysterectomy is the most conservative method of emptying the uterus. Nitrous oxide gas or ether should be used in preference to chloroform for anesthesia.

PRACTITIONER.

December, 1912.

Sleepiness.—F. Taylor describes abnormal sleepiness; the condition is not one of the so called sleeping sickness, but of an abnormal somnolence, such as was pictured by Dickens in his fat boy. Treatment, he says, resolves itself into dealing with the cause, whenever we are fortunate enough to know what the cause is. Local diseases about the base of the skull may be treated surgically. In obvious conditions of toxemia, or of autointoxication, whether from the stomach, bowels, or kidneys, or of altered metabolism of any kind, the special indications must be dealt with as far as possible. He doubts the wisdom of regarding high blood pressure, which he found in his cases, as anything more than an indication of a toxemia. When associated with obesity, dietetic measures may be used with judgment to reduce the superabundant fat. The evidence of the participation of the glands in this symptom he considers sufficient to suggest a trial of pituitary or thyroid extract in such cases as do not present an obviously toxic element, or in those which do not do well when the apparent cause has become inoperative. If the sleepiness is the result of a disturbed balance between fatigue products on the one hand, and the gland secretions on the other, we may try the effect of supplementing the defensive element by a recourse to one of these extracts.

Rest Cures in Theory and Practice.—H. C. Miller, before describing the orthodox rest cure, quotes the words of Weir Mitchell, who devised it: "I am more fearful that it will be misused, or used where it is not needed, than that it will not be used, and with this word of caution I leave it to the judgment of time and of my professional brethren." As is well known, the rest cure is a combination of psychic and physical influences suited to the needs of a fairly common type of neuropath. It comprises complete rest in bed, isolation, overalimentation, and massage. Miller analyzes the curative elements that enter into this prescription, and discusses the types of cases that require various forms. He divides the neuroses into neurasthenia, the disease of strain, the causes of which may be psychic (anxiety, disappointment, self repression, etc.), physical (either toxic, from autointoxication, arteriosclerosis, alcohol, drugs, or traumatic), or psychophysical (from eyestrain, deafness, etc.); psychasthenia, the neurasthenia of degenerates, and hysteria, the disease of inadequate inhibition. Hysteria and neurasthenia combine, forming a large class of hysteroneu-

rastrhenics. The neurasthenic will enjoy a rest cure if it is conducted upon rational lines; if a true neurasthenic finds it irksome, something is wrong with the cure. The intellectual aspects of the treatment are first considered along the lines of mental inactivity, mental occupation without effort, and mental occupation with effort. Then come the physical aspects. Overalimentation also, he thinks, needs to be modified according to the case, and the same is true of massage. If a hysterical patient is treated as a neurasthenic, the results will be transitory. If a neurasthenic is treated as hysterical, there will probably be no results at all. A case of neurasthenia due to eyestrain treated in this manner will improve rapidly at first, then slowly, and relapse at once when he goes to work, because of uncorrected astigmatism. The aim should be not only to put the patient on his feet again, but to teach him not to fall again, and this can be accomplished only by avoidance of routine and individual study of the cases.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

December, 1912.

Smallpox.—T. H. Whitelaw gives a brief account of fifty-eight cases of smallpox that have come under his observation during 1912. Of these patients fifty had never been successfully vaccinated, though the attempt had been made in a few. Of the eight vaccinated patients, all had been vaccinated in infancy and most of them had only one mark; none of them was under twenty years of age. He says: "It is not at all creditable to Anglo-Saxon civilization to state that among this series of cases there was not a single patient who was not born in Great Britain, Canada, or the United States; and yet we commonly hear the statement made by our so called intelligent Anglo-Saxon, who prides himself on his cleanly person and habits, that it is little wonder we have smallpox when so many unwashed foreign immigrants are coming into our community. They may need washing, but they are almost invariably vaccinated and revaccinated." He urges health officers to take up the matter of vaccination vigorously in the public press.

Treatment of Nevus with Solid Carbon Dioxide.—E. A. Smith avers that solid carbon dioxide is a valuable addition to our armamentarium for the treatment of nevus, moles, and some other superficial conditions. The application should be made for not more than fifteen seconds in children up to two years old, and for as long as forty-five seconds, or longer, in an adult. Several applications should be made at intervals in extensive cases. No anesthetic is necessary, as the application is comparatively painless, but sometimes the pain during the thawing, and perhaps for some hours afterward, is considerable. In the after treatment a drying, mildly antiseptic powder with a pad of aseptic wool is preferable to ointments, under which there is more tendency to ulceration and greater difficulty in maintaining asepsis.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 9, 1913.

One Hundred and Ten Cases of Renal and Ureteral Calculi and Ten Cases Simulating These Conditions.—F. S. Watson deals with the

chemical and physical characteristics of these calculi, their recurrence, the frequency with which they are bilateral, the symptoms produced, errors in diagnosis, the value of radiography, the dangers caused by their presence, the medical and the surgical treatment. In nine of the ten cases in which renal calculus was simulated the actual troubles were: Displaced kidney constricted by bands of adhesions in two, pressure of adhesions in kidney not displaced in one; movable kidney in one; moderate distention of renal pelvis and calyces due to misplaced ureteral outlet from pelvis in one; enlargement of the kidney due to acute congestion in two; constriction of ureter by adhesions in two. The medical treatment is thus summarized: For renal colic the combined use of ether inhalations and moderate doses of morphine. Heat to the affected side. An abundant supply of water to be drunk. Liquid or milk diet. To aid in expulsion of calculus from the kidney: Spirit of turpentine in ten minim doses in gelatine capsules three times a day. Diet of milk, each tumbler diluted one quarter with Vals water, milk to be slightly warmed and drunk slowly. Fish and dry toast may be taken once daily. Patient is to rest recumbent during the regimen and to take occasional hot sitz baths. Treatment to last six days consecutively, then after a two days' interval it is repeated once or twice, if necessary. After one month, or six weeks of this treatment, if the stone has not passed, it should be removed surgically. Watson says that in every case in which the patients were freed from their calculi by medical treatment the cure was absolute, and in twenty of them the patient's subsequent history was followed from three to twenty years. Recurrence occurred in only six, and in these the calculi were removed again by the same treatment. The calculus failed to pass in seven cases; these were operated in successfully later. In eighty-seven per cent. of the writer's cases treated in this manner, in which the calculus was small enough to pass through the ureter, it was spontaneously expelled while the patients were under medical treatment.

Pellagra.—Elisha H. Cohoon and Frederic J. Farnell report a number of cases of pellagra and sum up their pathological findings thus: Fifteen out of the twenty-seven cases evinced absent knee jerks, eight distinct evidence of peripheral polyneuritis even to the extent of foot drop and muscular atrophy; five had diminished knee jerks. The differential blood count was one of a small mononucleosis. The cytological count in the spinal fluid although small, two to nine cells to the c. c., appears to be of sufficient weight to indicate a chronic inflammatory process. The microscopic findings in the central nervous system are such as are comparable essentially to that rare disease known as central neuritis, the nerve cells showing an infectious or febrile condition of essentially a parenchymatous reaction. Finally they ask, if, on the one hand pellagra is to be considered of a toxic or infectious etiology and showing central neuritic evidence; and on the other hand, is distinctly an afebrile condition of unknown bacteriology, is it not possible, or even probable, for it to produce neuritic symptoms of central as well as peripheral origin?

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

January 11, 1913.

Demonstration of *Spirochæta pallida* in the Cerebrospinal Fluid from a Patient with Nervous Relapse Following the Use of Salvarsan.—Henry J. Nichols and William H. Hough note the fact that spirochetes have been found in the spinal fluid during life in only four cases; twice in papular syphilis, once in hereditary syphilis, and once in syphilis of the nervous system with skin symptoms. The positive findings in secondary syphilis indicate an early involvement of the nervous system which may occur although there is an absence of definite nervous symptoms, which has a direct bearing on the subject of nervous relapse. The writers record their successful inoculation of the rabbit with *Spirochæta pallida* from the cerebrospinal fluid of a luetic patient. They believe it to be the second successful inoculation on record, and the first in which the rabbit has been used. The special interest is the fact that the fluid came from a patient suffering with nervous relapse following the use of salvarsan, and that the final proof of the syphilitic nature of this condition has been given. We have yet to explain why these relapses are more frequent under treatment with salvarsan than with mercury. The clinical lesson is that treatment in the early secondary stage must be vigorous and prolonged. A radical cure must not be attempted with less than three or four intravenous injections of salvarsan, combined with an intensive treatment with mercury over a period of at least two months. It is of great advantage if an examination of the spinal fluid can be made, because an increased cell count and protein content indicate the cases which are potentially those of nervous relapse.

The Human Prostate Gland at Birth, with a Brief Reference to Its Fetal Development.—See this JOURNAL for Oswald S. Lowsley's article, June 15, 1912, page 1204.

Bilateral Urinary Lithiasis.—Herman L. Kretschmer reports a case which is interesting from the fact of the long interval between the symptoms for which relief was sought, and the original onset of his trouble, viz., sixteen years, the fact that the only pain complained of was right sided, although he had bilateral calculi in the upper urinary tract, and on account of a simultaneous right sided ureterotomy for stone and a left sided nephrectomy. The writers emphasize the necessity of making a radiographical examination of both kidneys and both ureters, notwithstanding the symptoms may be only unilateral, and the value of the röntgenograph catheter in the diagnosis of ureteral calculi.

Röntgen Ray in Endothoracic Goitre and Thymus Hyperplasia.—André Crotti concludes that Röntgen ray examination must become a part of the routine in goitre work. In endothoracic goitre it is a necessity. The Röntgen ray examination should be made in every case of goitre, because thymus hyperplasia is likely to be present as a complication in any kind of goitre, especially in hyperthyroidism, and as this complication may prove fatal. While the diagnosis of a thymus hyperplasia is possible in the greater number of cases, a combination of the Röntgen ray and clinical ex-

aminations is necessary that a correct diagnosis may be made. Since the thymus gland is very sensitive to the Röntgen rays, especially in children, when the diagnosis of thymus hyperplasia as a complication of goitre is made, operation should be deferred until a marked diminution in the size of the thymus is effected through Röntgen ray treatment.

MEDICAL RECORD

January 11, 1913.

Diseases of the Labyrinth; Methods of Examining the Labyrinth in the Continental Clinics.

—James S. Greene describes the technic of applying the various tests in labyrinthine disease, and in estimating the comparative value of the different tests he observes that the turning test is the easiest to apply, but it has two disadvantages. Each labyrinth cannot be tested alone and in cases of severe sickness its application is contraindicated. The galvanic test has the same disadvantages and occasionally, especially in nervous patients, very disagreeable secondary effects follow. The caloric test, however, permits us to test each labyrinth separately, a fact which outweighs all its disadvantages. In measuring the excitability, with Brünings system, we must allow for the local conditions which influence the conduction of the heat (stenosis of the external auditory meatus, polyps, middle ear inflammation, the condition of the drum membrane, the presence of secretion, of cholesteatoma, etc.). Furthermore, it is not always possible to apply the test with water, as in cases of dry perforations; the water must be replaced by paraffin or air (hot or cold) by means of the apparatus from Lautenschläger. The caloric test is, with these disadvantages, the major test at present. Touching diffused purulent labyrinthitis, which is dangerous, being frequently complicated with meningitis or cerebral abscess, the writer advises operation at once, as soon as the diagnosis is made, the indication being the removal of all diseased tissue and making free drainage, which objects are accomplished in various ways. The carious portion of the horizontal semicircular canal may be removed with a sharp curette. The canal and promontory may be opened, curetted, and drained, either laterally or medially. The canal, promontory, and spindle of cochlea (if carious) should be removed. Finally, the posterior portion of the pyramid up to the internal auditory meatus is removed; this destroys the posterior and horizontal semicircular canals; then the promontory is removed. The writer points to the constant danger of injury to the facial nerve with consequent paralysis.

New Method of Treating the Toxemia of Pregnancy.—George P. Shears suggests that we have been looking too far for the cause of the toxemia of pregnancy, which he prefers to call the pre-eclamptic condition, due in part, at least, to sub-oxidation. The clinical symptoms of pregnancy, from the subjective dyspnea to the headache, edema, and final convulsions of profound toxemia, strongly suggest a lack of oxygen. This theory aids in explaining why eclampsia occurs so often in robust and vigorous young women, as having normally a high oxidative equilibrium they are the first to suf-

fer from a deficiency of oxygen. Basing his practice upon this theory the writer has treated his toxic patients by the free use of oxygen, and although four suffered the severe type, improvement and eventual recovery were noted in all. The writer therefore suggests the free use of oxygen, in all these cases, either by inhalation or subcutaneously. It is important to note that this method of treatment does not conflict with the use of milk diet, catharsis, hydrotherapy, or with other approved curative agents.

Case of Sinus Thrombosis; Operation; Recovery.—I. Grushlaw reports a case of sinus thrombosis which had many interesting features. The appearance of the sinus was normal, although it was the seat of a septic thrombus. Although the sinus was extensively involved there was almost a complete absence of any signs. Although the jugular vein was not ligated, recovery followed. The mastoid was diseased, but gave no signs thereof. Finally this severe infection followed a slight operation on the ear (myringotomy for acute otitis media purulenta), which had been performed in some dispensary.

LANCET-CLINIC.

December 7, 1912.

Further Clinical Observations of Mental Symptoms Caused by Suppurative Ethmoiditis.—J. A. Stucky calls our attention to his finding, that in disease involving the silent area of the brain (the anterior frontal lobes), it is difficult for the clinician to differentiate between cases of true insanity and those whose symptoms simulate this condition. These cases must be diagnosticated, not only from what we see and hear in the examination of the patient, but from symptoms and evidence given by the family and associates. From the clinical evidence obtained, the results of early surgical treatment, and the post mortem findings in the eight cases reported by the writer, an argument is made for a closer relation between the rhinologist and the alienist. The writer's observations also corroborate the opinion of Cordier, "that many cases, such as described by the writer, have been tried before juries, average juries, all over the country, and have been adjudged insane and have been accordingly committed to institutional care, when prompt surgical and medical treatment would have relieved them of their symptoms and put them back where they belong."

Definition of Nervous Dyspepsia.—Henry W. Bettmann reminds us of the twofold character of normal digestion: That it should be, first, *complete*, and, second, *unconscious*, and urges the opinion that the essence of nervous dyspepsia is a disturbance of the consciousness without a disturbance of the digestive process itself, an expression of a constitutional nervousness in which all the bodily functions tend to elicit abnormal cerebral responses, or it may be a more or less localized disturbance in which the abnormal irritability of the digestive organs themselves is the prime factor. The sequels of nervous dyspepsia are important, and assume either one of two types, eventuating in secretory disturbances (usually hyperchlorhydria), or in muscular atony, both of which in their early stages may

be purely nervous in origin, and both disappear entirely when the general condition of the patient is improved. The treatment has two indications: To overcome the local symptoms which are prominent in the patient's consciousness, by diet and drugs, and to remove the underlying conditions which cause the nervous manifestations, by restoring normal living conditions.

Pituitrin, a New Therapeutic Agent in Obstetrics.—G. Mombach sums up his conclusions as to the use of pituitrin in obstetrics by stating it to be proved both by experiment and clinical observation that pituitrin is the most efficient agent to stimulate uterine contractions, in doses of from ten to fifteen minims, given subcutaneously, repeated safely a second or third time, and is moreover absolutely safe. The writer asserts that many forceps operations can be avoided by the use of this remedy. If used in cases where the uterus is imperfectly contracted, secondary inertia uteri and post partum hemorrhage may be avoided. Post partum retention of urine is successfully overcome by pituitrin.

December 14, 1912

Mercury versus Salvarsan in the Treatment of Syphilis.—Edward H. Shields concludes that salvarsan has been a disappointment, there being some doubt, even in the early cases, of the efficacy of salvarsan to abort or cure syphilis. The curative value of salvarsan is in direct ratio to the age of infection. There is a difference, from a serological viewpoint, between salvarsan and mercury, the odds being against salvarsan, and there is a mortality from salvarsan which does not follow the use of mercury, which should indicate the use of the former in those cases only when mercury fails. If the requisite number of injections cannot be assured salvarsan should not be given, but in many cases should be followed by a thorough mercurial treatment. Salvarsan is indicated, however, in threatened perforations, when time is lacking thoroughly to saturate the patient with mercury and the iodides; and it may be necessary, from a sociological consideration, to administer salvarsan, but it should invariably be followed by mercury.

December 21, 1912

Functional Psychoneuroses.—F. W. Langdon discusses hysteria, neurasthenia, and psychasthenia, and differentiates the three psychoneuroses as follows: The keynotes of hysteria (pithiatism of Babinski) are retraction of the field of consciousness wholly, or in part, with suggestibility, a necessary causal and curative factor (the patient cannot *will* right). In neurasthenia there are varied morbid subjective sensations and undue fatigability, with defective nutrition and metabolism as a basis (the patient cannot *feel* right). Psychasthenia is marked by morbid fears, anticipations, and impulses (the patient cannot *think* right).

AMERICAN JOURNAL OF SURGERY.

November, 1912.

New Method of Treatment of Breast Cancer.—C. W. Strobell, to insure against recurrence, proposes removal of breast cancer by chemical surgery, which is painless, safe, and under complete control yet with the full consciousness of the pa-

tient. After extensive inquiries he finds that approximately only forty per cent. of breast carcinomata showed positive, microscopical metastasis to the axillary lymphatic nodes, and that eighty-five per cent. of recurrences in cancer of the breast are in the chest wall and only fifteen per cent. in the axilla. He is impressed by the fact that recurrence after operation for cancer of the breast is almost invariably in the line of incision, and believes the knife must sever the continuity of the fluids as well as the tissues holding them, hence infection is almost inevitable because of the manner of traumatism. He reports seven cases successfully operated in by the chemical method, which he describes as follows: 1. Cocaine, forty per cent. solution, is driven into the segregated area by phoresis and as high as 200 milliamperes of current may be used, varying with the susceptibility of the patient. 2. The cuticle is then destroyed with caustic potash. 3. Tissues outside of the condemned area are properly protected from accidental chemical contact by means of strips of cotton flannel saturated with flour paste. 4. A mixture of zinc chloride, with powdered sanguinaria plus water, to the point of proper working consistence, is applied and protected with dressings. 5. In twenty-four or forty-eight hours a layer of devitalized tissue is aseptically removed and a fresh application is made, repeating the process each twenty-four hours until the entire breast has been removed. 6. Nature is allowed to complete the operation in her own way by granulation. Strict asepsis should be maintained throughout. 7. Skin grafting after Ochsner's method is done under cocaine cataphoresis safely and painlessly.

Gonococcus Vaccine as a Guide in Diagnosis and Treatment.—J. London injects gonococci, suspended in normal saline solution, into the endodermal layer of the skin with a hypodermic syringe and fine needle and obtains a local reaction, believing, in obscure cases, where the gonococcus is a possible infecting agent, as in a joint, tendon, endocardial and peritoneal or pleural infection, as well as in involvements of the genitourinary annexa, both male and female, a means of diagnosis not dependent upon the discovery of the gonococcus itself is of decided value. To obtain this reaction the skin on the inner surface of the arm or forearm is cleansed with alcohol or ether, which is allowed to evaporate; then a saline suspension of dead gonococci in a strength of 50,000,000 to 100,000,000 to the c. c. is injected into the skin until a slight weal is formed. A positive reaction occurs in about twenty-four hours, a central papule, red in color, surrounded by a lighter red areola, two to three inches in diameter. A previous injection, within ten to fourteen days in negative cases, may cause a positive reaction on secondary injection. The writer reports that of eighteen cases in which the gonococcus was found, sixteen gave a positive reaction. Of fourteen control cases, non-gonorrheal, twelve gave no reaction, two gave a slight reaction. Of three cases of gonorrheal arthritis, two gave a positive reaction. In a case giving a negative reaction, staphylococci were found in the prostate, but no gonococci. In three cases in which the complement deviation test was

performed, two were positive and one negative to the blood test, but all three were positive to the skin test. In two cases of stricture, one was positive and one negative. Of eighteen cases which were clinically gonorrheal, but where no gonococci were found, in thirteen the skin test was positive, in two negative, and in three doubtful. Cured cases give negative reactions.

ANNALS OF SURGERY.

November, 1912.

Tetany Following Extirpation of the Thyroid.

—Francis J. Shepherd, reviewing the literature on the subject, says the weight of opinion tends to prove that postoperative tetany is dependent on the removal or destruction or injury of the parathyroids. As to the functions of the parathyroids there are at present two theories: 1. An antitoxine is developed by the parathyroids which neutralizes certain waste products of tissue metabolism; and, 2, the calcium metabolism of the cells of the body is controlled by the parathyroids, and their removal causes a rapid disappearance of the soluble salts of calcium from the blood. The glands are difficult to distinguish without microscopical examination, but as a rule their yellowish brown color distinguishes them from the deep red color of the thyroid. For treatment various measures have been adopted, transfusion, parathyroid feeding, injection of the nucleoproteid principle, calcium lactate, and transplantation from other subjects. The writer had always been a little sceptical regarding the danger of tetany or cachexia strumipriva following total thyroidectomy until last winter, when a severe tetany followed thyroidectomy in one of his cases. On the third day after operation the patient complained of a feeling of general formication and of a great weight which pressed on his brain. On the fifth day, in addition to formication and numbness of her legs and face, she began to have cramps in both hands, pains in the joints, and stiffness of the fingers and flexion of the toes. On the appearance of typical tetany the writer put her on one drachm doses of calcium lactate and one half grain of parathyroid extract, every four hours, which controlled all her symptoms. Six months later she had gained twenty pounds, and the only symptom at present is oppression in the head, which is corrected by lactate of calcium of which she now takes only twenty grains, twice daily.

Surgical Treatment of Aortic Aneurysm.—J.

A. C. Macewen, with a view to obviating many of the dangers attendant upon the surgical treatment of aortic aneurysms, namely, anesthesia, ligation of diseased sclerotic vessels, and embolus, following the detachment of a red blood thrombus, proposes a method for inducing the production of a strong, enduring white thrombus, which was put forward many years ago by Sir William Macewen. A fine, highly polished steel needle is introduced into the interior of the aneurysmal sac or dilatation, and the inner surface of the opposite wall is scratched very lightly so as to produce a series of slight abrasions on that surface. In this manner there is produced a white thrombus by the action of fibrin and leucocytes. This exudate under fa-

avorable conditions tends to increase in quantity and is later replaced by fibrous tissue. The advantages of this method are: 1. There is no sudden blockage of the vessel and no strain on the heart; 2, the thrombus is at first small and so intimately adherent that embolus is impossible; 3, it is easy of application in most cases; no incision is required, hence no anesthetic is necessary; 4, this method is particularly adapted to the so called "inoperable" forms of aneurysm. He reports the successful treatment of a critical case by the production of a white thrombus, where the routine medical treatment of rest, dry diet, and iodides failed. In October, 1909, a small steel needle was introduced twice and the posterior wall of a large aneurysm treated, similarly three and twelve months later, and now, sixteen months later, the woman feels better than she has felt for many years.

Treatment of Fistula in Ano.—A. W. Elting draws the following conclusions: 1. Probably not more than ten per cent. of fistulae in ano are tuberculous and a great majority of these are secondary to demonstrable tuberculosis elsewhere in the body, usually in the lungs; 2, the great majority of fistulae originate from a diseased condition of the rectum, existing in the lower one and one half inch, and this diseased condition is usually a hemorrhoid; 3, the essential principles underlying the cure of fistulae consist in (a) the severance of the communication between the bowel and the fistulous tract, and (b) the removal of the diseased portion of the bowel, including the fistulous opening; 4, a widespread and often destructive dissection and removal of the fistulous tracts in the circumrectal tissues is unnecessary; 5, it is possible to cure fistulae without injury to the sphincters and with a preservation of all the sphincteric function possessed prior to operation by the application of the Whitehead principle of rectal excision. The writer bases his observations in 105 consecutive cases of fistula in ano. Of these 105 cases, sixty-four occurred in males and forty-one in females, and arranged according to age, two occurred in the first decade; one of them a child of ten months; eight occurred in the second decade; thirty-seven in the third decade; thirty in the fourth decade; fifteen in the fifth decade; ten in the sixth; and three in the seventh decade. While there was no mortality associated with the operation, yet in seven there was some degree of stenosis, but all of these were cases with very extensive circumrectal inflammation and necrosis. The use of hard rubber rectal dilators, inserted by the patient once or twice daily, relieved the strictures in all of the seven cases.

SURGERY, GYNECOLOGY, AND OBSTETRICS

November, 1912.

Nephrectomy without Drainage for Tuberculous Kidney.—William J. Mayo advocates non-drainage following nephrectomy for tuberculosis of the kidney, because in his experience a sinus which was slow to heal often formed, particularly in the debilitated patient in whom the second kidney was somewhat involved, and in many instances mixed infection with suppuration occurred and undoubtedly was a contributing factor in the ultimate failure to

cure the patient. About two years ago a case of this type came under their observation. In operating, a large accumulation of wheylike fluid was found outside the kidney and, after removing the kidney, treating the ureter and cleansing the wound as well as possible, he filled the cavity, which held more than a quart, with normal saline solution and closed the wound without drainage. Primary union and a prompt and permanent recovery followed. The compensatory hypertrophy of the remaining kidney evidently furnished sufficient hyperemia to destroy such infection as may have existed within its substance. Since then, in operating in these cases, if the wound is soiled with tuberculous material the cavity is cleansed as well as possible, filled with normal salt solution, and closed without drainage. In cases in which the tuberculous material has not escaped into the wound and the patient is otherwise in good condition, there is no necessity for using the salt solution, but drainage should not be employed. An adequate incision is essential and should be secured by a vertical cut freeing the twelfth rib from its posterior attachment, and a long, transverse incision mobilizing the lower wall of the thorax. For a number of years it has been the Mayos' practice to inject from ten to twenty minims of carbolic acid (liquid ninety-five per cent.) into the ureter. This is distributed down through the lumen, and a ureter thus treated will rarely give trouble later.

Unsuccessful Surgery in Disorders of the Gallducts.—A. G. Gerster believes that as Naunyn's revolutionary views regarding the pathology of the liver find general acceptance, it is rational to conclude that the remedy suggested by him, surgical drainage of the biliary tract, must also be accepted. Naunyn states that there must be some other factor which is more constant than calculus and which is invariably present whenever febrile jaundice appears, with or without calculus, from any cause whatever. This factor is undoubtedly the infectious inflammatory edema of the mucous lining of the bile tract. This he terms cholangiolitis and though calculi aggravate the symptoms, yet the intrinsic and essential thing is the cholangiolitis, which often exists before stones are formed, and may continue after their removal. The writer found among the intrinsic causes of relapse, either stricture or undetected stones in the cystic, hepatic, or common ducts. He summarizes as follows: 1. Every dilated common duct should be opened and drained; 2, palpation should follow, not precede, incision of common duct; 3, an inflamed, thickened, adherent, or shrunken gallbladder should be removed; 4, all cicatricial deposits in the gallbladder or in cystic duct justify removal of the gallbladder; 5, the presence of many small stones, even though the cystic duct is patulous, indicates that the gallbladder should be removed; 6, the presence of a damaged gallbladder is not an aid, but an impediment to exposure of the common duct; 7, absence of the gallbladder does not constitute an important adverse factor in the subsequent exposure of the common duct; 8, suppuration in the gallbladder is the main cause of the formation of dense and extensive scars.

Proceedings of Societies.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Ninth Annual Meeting, Held at Atlantic City, N. J., June 3, 1912.

The President, Dr. JOSEPH H. WHITE, in the Chair.

President's Address. The Eradication of Malaria.—Dr. JOSEPH H. WHITE, of New Orleans, observed that malaria possessed a wider interest than any other of the tropical diseases in the United States—particularly in his native south. There had, however, been countless deaths charged to malaria that did not belong to it. Many knew cases in which general physicians, through ignorance, would make a diagnosis of malaria and sign a death certificate giving that as the cause, yet in which the cause was absolutely foreign to this disease. Again, physicians would charge up knowingly even such things as syphilis to malaria; because they were afraid to wound the sensibilities of the patient or his family. The morbidity of malaria, rather than the mortality, was the question that made it of importance, particularly in the south. He did not think the morbidity was overestimated, although the mortality was largely so. They all knew the importance of doing away with conditions that sapped the vitality of the race. The filling up of the country with inhabitants had accomplished the desired result in many parts of the northern and middle States, practically obliterating malaria, without interference on the part of the physicians. There were many places where this was not so; and the remedy was first to be applied in a palliative way, by excluding the mosquitoes from houses, draining small pools of water near at hand, and oiling those which could not be drained, using for the purpose an oil that had been devised by Colonel Gorgas, composed of resin, caustic silver, and some other things that were cheaper and more effective than the oil. The main point was the elimination of the swamps, in the south particularly. To arrive at a proper remedy they must appeal to the State and the nation, as well as to the citizens; so as to get in more people and to expend more money and energy in draining these swamps, and so do away with this curse of malaria. He had seen the gradual recession of swamp land before population in his own State and Florida, and the gradual dying out of malaria before the advent of population. In the last fifteen years, there had been tremendous recession of malaria all around along the Mississippi river, where it used to be impossible for a white man to live. That was due to the fact that the people had been clearing a belt three hundred yards wide around their houses, living in the second story, and keeping the people in the house until the dew was off the grass in the morning. Now, if they applied, along with these measures, scientific measures, by wiping out the swamps, they should ultimately wipe out malaria in the entire country. Could they not interest the State and the nation in the obliteration of the big swamps? Was this not an integral part of the movement started for the improvement of waste lands? Should not national drainage go alongside of national irrigation, and was it not as important? Irrigation led only to public wealth; this led to both health and wealth. In the low lying coast lands of South America, neither the mixed breed of Indian and white, nor the pure white could live; but the negro could; and he had taken possession of the coast lands, pushing the white people back. The same thing threatened them; but they could remove a part of the threat, if they could remove the prime cause of negro supremacy. It was by right of inheritance that the negro could stand the malarial climate. If malaria was not removed from the south lands, the negro race would be the only one which could stand it. He did not mean any ill will to the negro; and he should not have mentioned the south at all, except for the fact that his own native land was the most afflicted with this scourge.

Dr. M. P. RAVENAL, of Madison, Wis., told how his boyhood home was at Charleston, South Carolina; and how he was brought up on the idea that "country fever" (as malaria was called in that region) was invariably fatal; and that for a white man to spend the night at St. Andrew's Parish—which was across the river from Charleston, would be an act equal to shooting himself. His father

always had a strip of land, three hundred feet wide, that he did not allow to be cleared, bordering every piece of water on his grounds. This made a barrier of trees between the water and the house. All through the lower regions of the south it was the habit for people to leave their plantations on the fifteenth day of May, and not to go back to them until after the first frost in the fall. Many people said that the negro was immune to malaria, but he had seen negroes die like flies of it. The plantation negro was immune to this disease; but the negroes from the foot hills of the mountains, when taken down to the phosphate fields, were found to be very susceptible. The immunity of the negro race to malaria was acquired. The result of progress around Charleston had been such, that at present the white man slept in St. Andrew's Parish with impunity. This was due to the drainage of the swamps. There was no screening of the houses even. An uncle of the speaker's—for the first time last summer—lived on his plantation near Georgetown, S. C. He screened his house, and the whole family lived there throughout the summer without having a touch of malaria. The poor whites of the south were generally accused of laziness; but the fact was that they were as energetic as any people, when they were well. Malaria, together with hookworm disease, had, however, been a primary factor in keeping back certain parts of the southern country. There was no doubt that with the drainage of these malarial districts and the cultivation of areas of land, there had been an enormous material development, so that the public health question was of great importance to this country from that standpoint, as well as the racial one.

Dr. B. F. ROYER, of Harrisburg, Pa., pointed out that malarial fever cut a very small figure to-day in Pennsylvania. It was a reportable disease in that State, and a placard was put on each premise where it existed. It was common for physicians to speak of indefinite fevers as a touch of malaria; but the reporting of the disease had done away with this loose method of diagnosis. Physicians were formerly in the habit of calling typhoid fever malaria, because the former was reportable and the latter not; but now they must make the differential diagnosis between these two diseases, and the State laboratory was available to make the tests. They had a little shipping outfit, which held three glass slides; and this outfit was sent to the physicians all over the State, so that they might send smears to the laboratory. Their outfit for the Widal test was a slight modification of Wright's tube, so that they sent the blood in a sealed tube. He did not know the details used in the laboratory itself.

Dr. E. H. HUME, of Changsha, China, said that in Central China, where they had a great deal of rice raised, there was none of the anopheles within hundreds of miles; yet in other sections of rice country, there were crowds of them. The studies now seemed to indicate that the presence of anopheles had something to do with the kinds of fish, etc., contained in certain waters. They hoped within the next few years to find the solution of this problem. The distribution of malaria was being worked out in China as a problem of much importance, because the disease was so scattered in that country.

Dr. WILLIAM H. JEFFRIES, of Shanghai, China, recalled that there had been a bill passed in the State legislature of Maryland providing that the State would pay two thirds of the cost of draining any swamps, if the land owners would pay the remaining third. So far, very few land owners had taken advantage of this law. Therefore, the draining of swamps on a big scale would have to be done by the State or Congress. He did not think that individual enterprise would do a great deal in that direction.

Biological Characteristics of *Spirochæta pallida* and *Spirochæta pertenuis*.—Dr. HENRY J. NICHOLS, of Washington, D. C., pointed out that the differences in morphology were slight; the same was true of the cultural characters so far observed. No specific antibodies had as yet been demonstrated. Group reactions occurred in the complement fixation tests with culture. Distinctive lesions occurred in experimental lesions in the rabbit and the action of salvarsan was distinctive. A review of their present knowledge of the biological characters of *Spirochæta pallida* and *Spirochæta pertenuis* threw but little light on their distinctive pathogenic properties, and showed the need for further investigation along some of the lines indicated.

Dr. CREIGHTON WELLMAN, of New Orleans, thought that an attempt to work out exactly some of these relationships by means of a complement deviation or by other means was a thing that, while involving a great deal of work, was very much worth while. He discovered *pertenuis* and published a paper dealing with this discovery a few weeks after Castigliani's discovery. It, therefore, served merely as a confirmation of his; but he worked out the spirochete and sent his paper away long before he saw Castigliani's paper. He believed that there were morphological differences between this and the other form of spirochetes, *pertenuis* being blunt at one end and sharp at the other. The speaker, on the other hand, believed this difference to be due to faulty technic and he considered them to be entirely distinct, and did not agree with those who sought to unite the two diseases or the two parasites. If one saw a good case of yaws and one of syphilis, one got the two kinds of cases settled in the mind. They needed more scientific care in solving the question of the tropical diseases.

Doctor NICHOLS considered one drawback to this sort of work in tropical diseases to be that laboratories in the tropics were not so well fitted up as they were in the temperate zones. One might see many cases of the yaws in the backwoods of the tropics, and have no facilities to work with; while here they had the facilities, but not the cases; therefore, the work was slow.

Cultural Studies of Malarial Parasites.—Dr. CREIGHTON WELLMAN, of New Orleans, said on behalf of Dr. C. C. BASS, of New Orleans, that the latter had gone on a scientific expedition, sent out by the Tulane University School of Tropical Medicine at New Orleans, and was now in Central America studying malaria. He had succeeded in cultivating the malarial parasite and following out the entire cycle of schizogony, not only in culture, but in transplants. This work was begun some months ago; and some of the members might remember his preliminary announcement in the *Journal of the American Medical Association*, stating that the malarial parasites had been kept alive for seven weeks. His later work was done by the same method as described in that article. Doctor Wellman believed this discovery made by Doctor Bass worthy to stand beside the former discovery that the mosquito was the host of the malarial parasite.

Simple Method of Differentiating Disease Bearing Insects.—Dr. C. S. LUDLOW, of Washington, D. C., first discussed briefly the general external resemblances and differences between ticks and bed bugs, lice and fleas. Wing venation offered a good means of differentiating groups of flies. The family was always indicated, and sometimes even the genus made evident, by this means. The differences were easily recognized and were available to every one on account of their simplicity. The classification of the mosquito was in almost inextricable confusion.

Dr. CREIGHTON WELLMAN, of New Orleans, agreed that the classification of mosquitoes was in complete confusion, as Doctor Ludlow had said. In no other group of arthropods was there such a great number of people rushing in to describe new species, as in mosquitoes. He would also deprecate the attempt to name animals and insects by people who were general entomologists and not specialists. If they wished to work with a species of mosquito, first find out just what it was by sending specimens of it to some one especially working with mosquitoes. The same thing held true of other kinds of insects. Another thing that he deprecated was the guessing at the rôle played by every blood sucking insect. In order to play a pathological part, the insect must be a common one, be closely associated with man, and suck blood repeatedly. So far as the philogenetic significance of this wing venations was concerned, he was not so sure of the final state of that question; but there was no doubt of their taxonomic value. There were hiatus in the life history of almost all these insects, and the filling up of some of these gaps required the gathering of data, which students in tropical medicine might help them with. The best manner of clearing up the habitat of the tsetse fly, the glossina, was based on the fact that a peculiar degree of shade and humidity was necessary for its reproduction. The clearing away of the timber in the fly belts, allowing the sun to shine there, was efficacious; because these flies wandered only a few yards, at most, from the belts. The problem of mosquito destruction, as Dr. Joseph H. White had remarked, was a live one in the city from which they both hailed. They wanted

to make a mosquito survey, similar to that which was made by Doctor White and his associates in the far famed yellow fever times. The conditions had changed since that work was done, and he believed that the task of collecting carefully and patiently exact data, getting a foundation of facts from which to draw a deduction, would be of more benefit at the present stage of the problem than making a great many ingenious suggestions and hypotheses which had little basis in fact.

Dr. JOSEPH GOLDBERGER, of Washington, D. C., thought there was a great deal too marked a tendency, not only in entomology, but also in all of the branches of medical zoology, to a very broad, superficial study. The number of species and genera was appalling. The time had more than come when they needed intensive study, rather than a superficial layer of poorly recorded facts. They needed to know more about the life histories of the animal, and the way in which it bred, lived, and had its being; and instead of rushing madly after new species, they should try to learn something more about those they knew already.

Doctor LUDLOW observed that so far as the study of flies was concerned, the study was surrounded with more difficulties than were usually recognized. The anopheles were especially shy, and many people insisted that they had no anopheles in their vicinity, when more care would show that they did have them. The question of whether one should name a new form depended upon several conditions. If they had a form that they could not find described anywhere, they must describe it; but they might find it again, and they might not. That was why it was hard to base a classification on the male sex.

Bacteriemic Nature of Leprosy.—Dr. DAMASO RIVAS, of Philadelphia, said the work was based upon the fact that *Bacillus lepræ* was easily found in the blood in cases of leprosy. The method consisted in collecting 0.1 to 1.0 c. c. of the patient's blood, from the tip of the finger or toe (free from lepra lesions), or from the vein, in about five to twenty c. c. of a two per cent. solution of acetic acid in which the erythrocytes were dissolved. The mixture was centrifugated for about fifteen minutes and the sediment was examined for alcohol acidfast bacilli. The method of staining was one usually followed in the examination for tubercle bacilli; the sediment was spread on a slide, dried, fixed, stained with carbol fuchsin, decolorized with thirty per cent. hydrochloric acid solution in ninety-five per cent. alcohol and counterstained with methylene blue. In the original paper plates were given illustrating *Bacillus lepræ* found free in typical aggroupment or scattered, as well as in the form of lepra cells; that was, endothelial cells or lymphocytes filled with the bacillus, also a few bacilli phagocytized by lymphocytes, were shown as evidences that *Bacillus lepræ* was found in the circulating blood. This method was advantageous in demonstrating the bacterial nature of leprosy and also as a means of diagnosis of the disease.

Early Diagnosis of Filariasis.—Dr. DAMASO RIVAS, of Philadelphia, went on to say that this diagnosis was based upon finding the microfilaria in the blood in the early stage of the disease; that was, before the symptoms due to obstruction in the flow of the lymph, such as lymphangitis, elephantiasis, etc., are manifested. The procedure consisted in collecting from 0.1 to 1.0 c. c. of the blood, from the finger, in about five to ten c. c. of a two per cent. acetic acid solution, in which the erythrocytes were dissolved. After shaking, the mixture was centrifugated for about five minutes, and the sediment examined. Either fresh cover glass, or dried and stained preparations, were made from the sediment. With the acetic acid method, it was immaterial at which hour of the day or night the examination was made. If the case was positive, the microfilaria would be found in the sediment. Four comparative tables were given in the original paper, and the advantage of the acetic acid method over the common fresh blood cover glass preparation, as usually recommended, might be summarized as follows: 1. Microfilaria of *Filaria nocturna* or *Filaria loa* were found in the peripheral blood at all hours of the day or night. In cases of *Filaria nocturna* the greater number was found at night; while in *Filaria loa*, the greater number was found in the day. 2. The periodicity of microfilaria in the peripheral blood was related to the relative number of embryos circulating from the blood, and not to an absolute absence of them from the capillaries. 3. The acetic acid method was

of special advantage in the early diagnosis of filariasis. By it, the microfilaria could be demonstrated in the blood as soon as the adult filaria reached maturity and began to discharge its embryos, which, in all probability, took place years before the obstructive symptoms of filariasis were manifested.

Dr. HENRY J. NICHOLS, of Washington, D. C., thought that there should be a more careful investigation of tropical diseases. There had been too much tendency in this branch of research to tell some wonderful story about a disease not clearly known, except to a few. For instance, it was true that *Filaria diurna* was in the circulating blood in the daytime; but it is not true that it was not at night. For two or three months, he observed several cases of patients who were nightwatchmen; and at the end of this time, their periodicity had not changed. They still had more filaria at night than in the daytime. There was more need of careful observation on these points, before a story was stated as a fact.

Summary of the Literature on the Etiology of Beriberi.—Dr. JOHN M. SWAN, of Rochester, N. Y., having reviewed the literature of the etiology of beriberi, suggested the following definition: So far as our knowledge went, beriberi was a disease of metabolism, characterized, pathologically, by a polyneuritis; and clinically, by an acute stage resembling an acute infection, by a stage associated with marked edema, and by a stage of polyneuritis and paralysis, and due to a diet of which uncured rice formed the principal element.

Investigation of Louisiana Rice with Reference to the Etiology of Beriberi.—Dr. CREIGHTON WELLMAN announced that with the purpose of determining whether or not the experimental results obtained by various writers with the polished rice of the Orient could also be obtained with rice grown in Louisiana, he and Dr. C. C. Bass had undertaken a series of experiments with chickens which were still in progress and of which the following was an account: The best culled Louisiana white rice was obtained at the mill after chaff had been removed, and was designated as unpolished rice. Another sample of the same lot was obtained after culling and finishing ready for the market, except that the final coat of glucose and talcum had not been applied. Only rice used in Louisiana and milled there was studied. Marked nerve symptoms appeared after seventeen to twenty-three days in fowls fed exclusively upon polished Louisiana rice. The same rice unpolished did not produce the disease, and such rice with a general diet promptly cured the disease. A diet of pure cane sugar would produce this characteristic more rapidly and completely than the polished rice. Pure cornstarch would also produce the condition rather more slowly than polished rice.

Public Health Problems in Connection with Beriberi.—Dr. R. H. CREEL, of Ellis Island, N. Y., asserted that in the United States beriberi had been confined to sporadic outbreaks in various parts of the country during the last twenty years. There was no evidence of any increase, and in this country the disease had not assumed public health proportions. The origin of beriberi was not known, but the great epidemicity of the disease during the last thirty years had been coincident with the increased output of steam milled or polished rice. Beriberi in Manila had steadily increased. In the fiscal year 1903-4 there were 318 deaths from this disease. A steady yearly increase in its mortality resulted in 1,480 deaths in 1910-11. In the period, 1903-1911, twice as many deaths resulted from beriberi as from cholera, in Manila. The disease had been practically suppressed in Government controlled institutions in the Philippines, but in the population at large beriberi was on the marked increase, both in Manila and in the provinces. The mortality incidence of the year 1910-1911 for the archipelago was fifty-five per 100,000; this in contrast to our admittedly disgraceful typhoid rate of twenty-two deaths per 100,000 in the United States. The prevention of beriberi lay in Government control of the milling process of rice, enforcing an undermilled product with a standard of 0.4 per cent. phosphorus pentoxide requirement. A rice law similar to the corn law of Italy would enforce this requirement on all rice imported or milled locally. Rice for sale in places of retail or wholesale would have to come up to this standard. A fine and confiscation of polished rice, whether imported or for sale

locally, would undoubtedly result in the desired quality of undermilled rice in the markets. The culture of rice having a white pericarp instead of red, would materially reduce prejudice against unpolished rice. The results obtained in a practical way among the scouts and in the Government institutions in the Philippines, basing the measures on the assumption of polished rice as the cause of beriberi seemed to justify the enactment of a rice law.

Doctor WILBUR, of San Francisco, felt that they must make a distinction between polyneuritis due to inanition and that due to infectious microorganisms. It was particularly difficult for him to understand why on shipboard a number of sailors and officers should all come down, within the space of a few days, with acute symptoms of beriberi, and even die within a day or two. Certainly one would expect if it was entirely due to food, that they should get much more scattered cases, rather than epidemic.

Dr. JOHN M. SWAN, of Rochester, N. Y., told how in the province of Canton, and more particularly in Canton, practically outside of the zone where beriberi was very prevalent, they had, in 1907, a very severe outbreak of beriberi in the military camps, east of the city. There were about 6,000 troops, and during that spring season, there were about 600 cases of beriberi, with a mortality of something like twenty per cent. It has seemed to the physician in charge, whose report Doctor Swan used, that the use of polished rice was a preeminent factor in the etiology of beriberi. It occurred to Doctor Swan that he might give the consensus taken in this connection by the Far Eastern Association of Tropical Medicine, a meeting of which was held in Hong Kong in February last. The results of the work submitted to this meeting of the Far Eastern Association of Tropical Medicine had been such that they felt there was little question now as to the causation of beriberi. The question was whether it would be practicable or possible to overcome the difficulties which would arise in recommending laws or taxation, or the adoption of such measures by the different governments, as would control the product of this polished rice. Years ago they had been very careful in handling these cases of beriberi. They supposed then that they were contagious; but in recent years, owing to more careful investigations, they had not isolated these cases, and they had never seen any indication of contagion.

Dr. W. H. JEFFREYS, of Shanghai, China, found it hard to accept the polished rice theory because of the fact that it did appear apparently epidemically. He was entirely convinced that the epidemicity was due to the fact of the use of certain brands of rice. Shanghai and Hong Kong were the places where beriberi was most pronounced in China. In St. Luke's Hospital they had paid a very high price for rice and had had a great deal of beriberi. Before the theory was established they used to add dried beans to the diet as a regular thing and that kept away beriberi more or less. He thought the reason was self evident. With the removal of the beans and a diet of white rice, beriberi used to break out almost like an epidemic in the ward.

(To be concluded.)

Letters to the Editor.

A LEAD FOIL X RAY FILTER.

FORT WORTH, TEXAS, January 21, 1913.

To the Editor:

Since hearing Doctor Pfahler's paper in 1905 I have used the leather filter consistently and with much satisfaction, but there were certain limitations beyond which we dare not go, although the treatment seemed only a little short of the desired result. And after trying out many and various substances I find that the one thing desired has been at hand all the time.

Lead foil, the ordinary kind with which we all are familiar, is the ideal filter for treating deep seated conditions. It is seemingly a perfect protection to the skin and does not materially interfere with the deeply penetrating rays. X rays may be given many times stronger and longer and many internal conditions relieved that would be impossi-

ble with leather or aluminum or any other substance before used.

The most profound action may be had on the deeper structures without any destructive action whatever upon the skin, not even affecting the hair follicles. I have used this method only about sixteen months, but its use has been so convincing that I wish to make this preliminary report in order that other and more prominent workers may verify my experience.

Cases where decided dermatitis has appeared will heal just as rapidly as if treatment had been discontinued, and at the same time action on the deeper structures may be much more vigorous and effective. So far I have not found the limit to which it may be carried, dermatitis not having occurred in any case, although treatments are more than double any formerly given and the results are impossible from any other method of filtration.

I do not wish to give a detailed report of cases at this time, but only the suggestion that others may aid me in working out the details. The lead foil may be used like any other filter. The penetration through the lead foil is easily demonstrated on the photographic plate which will also show that foil does not give protection to the internal viscera.

I have seen no former mention of lead foil as a filter, but if it has been previously suggested I want to emphasize it and urge its use.

GEORGE D. BOND, M.D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Practical Gynecology. A Comprehensive Textbook for Students and Physicians. By E. E. MONTGOMERY, M.D., LL.D., Professor of Gynecology, Jefferson Medical College, Gynecologist to the Jefferson Medical College and the St. Joseph's Hospitals, etc. Fourth Edition. Revised and Rearranged. With Five Hundred and Eighty-nine Illustrations, the Greater Number of Which Have Been Drawn and Engraved Specially for this Work, for the Most Part from Original Sources. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xxii-857. (Price, \$6.)

We have distinct pleasure in reviewing a work on gynecology which exhibits such exactitude and painstaking care as this work, and is such an epitome of what is best in this specialty, as to make it valuable not only to the student, but also to the specialist as well as the general practitioner of medicine.

The fourth edition of this standard work shows a marked improvement in typography, binding, and general make up. In this careful revision much that was obsolete and useless, of mere historical interest, has been omitted and important chapters have been rewritten.

The value of serum therapy and bacterial vaccines has been judiciously considered. The melancholy subject of malignant disease of the genital organs has been discussed in a masterly manner, and the chapter on diagnosis of this condition is earnestly recommended to every general practitioner for study; as the only hope for permanent relief is dependent upon the early recognition, and this early diagnosis must be made, not by the specialist, but by the general practitioner who is first consulted and who should be ever alert to the vital importance of this subject.

Montgomery's book is a truly representative American work, embodying the principles of safe and sane gynecology, by a conservative author who is giving the profession the benefit of his wide and varied experience as a teacher and surgeon.

Surgery and Diseases of the Mouth and Jaws. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By VILRAY PAPIN BLAIR, A.M., M.D., Professor of Oral Surgery in the Washington University Dental School, and Associate in Surgery in

the Washington University Medical School. With 384 Illustrations. St. Louis: C. V. Mosby Company, 1912. Pp. xxv-638. (Price, \$4.)

Among the many excellent books dealing with diseases of the face, mouth, and jaws, which have recently been published, this volume of Blair's will take an eminent place. Of so comprehensive and uniformly admirable a work it is almost impossible, in a brief review, to mention particularly all the praiseworthy features by which the reader is impressed. There are, however, two important conditions which have been omitted or slurred over by other authors which Blair has satisfactorily presented, viz., the operative treatment of deformities and malrelations of the jaws and Sluder's description of the syndrome which he has so carefully and painstakingly investigated, sphenopalatine neuralgia.

An enumeration of the subject matter of the various chapters will give an idea of the scope of the work. Commencing with the physical examination and anatomical considerations, the author takes up in sequence the following subjects: Inflammations, infections, tumors, cysts; preparation of the hands, operative field, instruments and dressings; hemorrhage, shock, and allied complications; wounds and injuries of the soft parts; injuries of the teeth and alveolar process; fractures of the jaws; dislocations of the upper jaw; congenital facial, palate, and lip defects, with descriptions of the various operations for the commoner forms as well as those adapted to extraordinary cases; obturators, artificial vela and speech training; repair of acquired defects in the lips, cheeks and palate; ideal occlusion and malocclusion of the teeth; irregularities in the growth and relations of the jaws and their operative correction; diseases of the temporomandibular joint; limited movement of the jaw; extraction of the teeth; infections and inflammations of the mouth, teeth, circumferential tissues and jaw bones with their treatment; septic inflammations of the floor of the mouth and neck; diseases of the maxillary sinus; tumors of the mouth and jaw bones; diseases and tumors of the lips, including cancer; tumors and cysts of the floor of the mouth; affections of the salivary glands and their ducts; congenital affections, injuries, and diseases of the tongue, including tumors and cancer; tuberculous and malignant disease of the cervical lymphatics; malformations, injuries, and diseases of the pharynx, including its tumors and those of the velum and tonsils; ligation and temporary constriction of the arteries; motor derangements; tic douloureux and sphenopalatine neuralgia; local and general anesthesia. The illustrations are in the main excellent and the press-work is good; altogether this is a valuable and commendable work.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, etc. Seventh Edition. Revised and Enlarged. With 450 Illustrations and 39 Plates in Monotint. New York and Philadelphia: Lea & Febiger, 1912. Pp. xx-930.

An attempt has been made by the author to bring the seventh edition of this well known work abreast of the times. It has long been felt that the later editions have retained much that was antiquated in literature, illustrations, and description. The author has succeeded in part in this ambition. More than one hundred new illustrations from photographs and skiagrams appear in this edition and some sections have been added to the subjects of treatment of old dislocations and the operative treatment of recent fractures. The subject of the open method of treatment of fractures, advocated by Lane and others, which has awakened wide interest throughout the surgical world, receives in this work very meagre notice beyond a general condemnation. The student or surgeon desirous of learning the details of the use of Lane's plates and other new methods of fixation of fractures will not find them in this work as in other modern treatises. The pathology of fractures and a description of the symptoms and ordinary methods of treatment are ably presented in this edition as in earlier ones. Some of the latest additions to our knowledge which have been made possible by the x ray have also been given recognition, notably fractures of the carpus and tarsus. On the whole this edition is satisfactory in its presentation of the subject from the point of view

of pathology, symptoms, and general methods of procedure. It lacks full details of treatment with splints and other forms of retention apparatus, particularly with the newer methods of open fixation. The photographs and x ray plates are fair and sufficient to illustrate the text.

Health and Happiness. A Message to Girls. From ELIZA M. MOSHER, M.D., Lecturer on Special Anatomy, Physiology and Hygiene for Women, Chautauqua School of Physical Education, etc. Illustrated by HELEN MULHERON. New York and London: Funk & Wagnalls Company, 1912. Pp. xxii-203. (Price, \$1.)

The Soul and Sex in Education, Morals, Religion, and Adolescence. Scientific Psychology for Parents and Teachers. With a Chapter on Love, Marriage, Celibacy, and Divorce. By JIRAH D. BUCK, M.D. Cincinnati: Stewart & Kidd Company, 1912. Pp. xxiii-175. (Price, \$1.25.)

These two volumes illustrate anew the difficulties of the subject of sexual education. Doctor Mosher's volume, addressed to mothers of girls, is a wholesome book. It covers in a simple, straightforward manner the domain of anatomy, physiology, and sexual development of girls. The difficult problems relating to sex are treated with admirable frankness, but the book is laden with a superfluity of scientific detail that renders it often dull and difficult even to the educated reader. Moreover the author's personal views on such subjects as lateral curvature of the spine are developed with unnecessary detail. Why the chapters should be written in the form of letters, each from a different town, we cannot imagine; the association of York, Me., with crooked hips is no more obvious than that of Halifax with corsets.

Doctor Buck's volume defies criticism. His explosive style does not conduce to consecutive expression, and the progress of his thought is constantly interfered with by his horror of religion. One notes that his book is founded upon good scientific authority; but whether judged by his temper or by his powers of assimilation and secretion, the doctor's mental digestion seems none too good.

Les Parathyroides. Par LOUIS MOREL. Questions biologiques actuelles. Collection de monographies publiées sous la direction de M. A. Dastre, membre de l'institut, professeur à la Sorbonne. Paris: Librairie scientifique A. Hermann & Fils, 1912. Pp. 344.

This work is a comprehensive and painstaking compilation of all experimental facts concerning the parathyroid glands. Beginning with their anatomy, the writer considers, in logical sequence, experimental parathyroid insufficiency, the relation between the parathyroids and the other internal secretion glands, and parathyroid insufficiency in man. The work is too technical for the general practitioner, but is a mine of information for investigators.

Diseases of the Genitourinary Organs. Considered from a Medical and Surgical Standpoint, Including a Description of Gonorrhea in the Female and Conditions Peculiar to the Female Urinary Organs. By EDWARD L. KEYES, Jr., M.D., Ph.D., Professor of Genitourinary Surgery, New York University and Bellevue Hospital Medical School; Surgeon to St. Vincent's Hospital. With One Hundred and Ninety-five Illustrations in the Text and Seven Plates, Four of Which are Colored. New York and London: D. Appleton & Co., 1912. Pp. xvii-975.

This work was written primarily for the use of the general practitioner and students. It bears the imprint of a conscientious effort to carry out this purpose. Books on special departments of medicine are often too abstruse to reach the nonspecialists; the class of information they contain is also such at times as to suggest that the subject is too complex for any one other than the specialist himself to whom the patient should be sent. The present work enables the reader to diagnose and treat practically all conditions in which the special training of the urologist and the use of instruments of precision are not needed—a limit which provides for the safety of the patient in difficult or obscure cases. This does not mean that these finer scientific resources are neglected; cystoscopy and ureteral catheterism, for example, are not only described by Dr. B. S. Barringer, but the technic of these procedures is admirably though succinctly given, each step being clear-

ly outlined. The quantitative and qualitative tests of urinary function including cryoscopy, chromocystoscopy, methods for the estimation of urea are also considered. Gonorrhea of both sexes and the various forms of urethritis and vaginitis which may be mistaken for it occupy 132 pages; urethral stricture, diseases of the prostate, bladder, kidneys, ureters, scrotum, testicle, and penis, and syphilis are no less comprehensively treated. The terminal chapters are devoted to operative surgery of the genitourinary organs, the technic of each operative procedure being described. The illustrations are as a rule good, though some of the colored plates are not up to the standard of the high class works to which the present book certainly belongs.

E. Albert's Diagnostik der chirurgischen Krankheiten. Zehnte, vermehrte Auflage. Herausgegeben von Dr. KARL EWALD, a.o. Professor. Mit 55 Holzschnitten. Wien und Leipzig. Alfred Hölder, 1912. Pp. vi-373.

Albert's book is so well known in the surgical world that a new edition will be greeted with enthusiasm, not only among German surgeons, but also in this country. Twelve years have elapsed since the death of this distinguished Viennese surgeon, and this the tenth edition of his book bears testimony to the excellence of the original work. Doctor Ewald has made every effort to preserve the original text and form, at the same time putting in necessary additions. The reader is struck by the scarcity of illustrations and their antiquated appearance. Such great advances have been made in this art since Albert's death that it would seem desirable to have made use of plates more up to date and more illustrative of the text. The text, however, stands to-day as a model of clearness of description, acuteness of observation, and soundness of pathological principles. Each chapter is devoted to one particular organ or region and the differential diagnosis receives ample consideration. The student or practising surgeon will receive great benefit from a thorough perusal of any chapter pertaining to a particular case in hand. The first chapter, for example, is devoted to a consideration of the various abnormal positions of the head and the underlying pathological conditions. The student is thus taught the important method of considering all the possible causes of a certain finding and then by elimination determining the cause in the special case under observation. This method is a most valuable acquisition for a practising surgeon and cannot be obtained through the ordinary descriptive textbooks. Such a book as this has the value almost of a clinical demonstration especially as the author has put into it so much of his unusual power of accurate observation, clear reasoning, and expressive statement. The book will always remain a classic example of this kind of surgical treatise.

Meetings of Local Medical Societies.

MONDAY, January 27th.—Medical Society of the County of New York.

TUESDAY, January 28th.—New York Dermatological Society; Metropolitan Medical Society of New York City; New York Medical Union; New York Otological Society; Riverside Practitioners' Society, New York; Valentine Mott Medical Society, New York; Washington Heights Medical Society; New York Psycho-analytic Society; Alumni Association of Seney Hospital, Brooklyn; Rome, N. Y., Medical Society.

FRIDAY, January 31st.—Hospital Graduates' Club, Brooklyn; Audubon Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 15, 1913:

Bogges, John S., Passed Assistant Surgeon. Granted one day's leave of absence, January 17, 1913. Carter, H. R., Senior Surgeon. Granted two days' leave of absence on account of sickness, January 8 and 9, 1913. Cleborne, A. B., Acting Assistant Surgeon. Leave of

absence for seven days from January 2, 1913, revoked. **Creel, R. H.**, Passed Assistant Surgeon. Directed to receipt to Surgeon S. B. Grubbs for the public property in his charge and to assume the duties of chief quarantine officer of Porto Rico in addition to his other duties. **Delgado, J. M.**, Acting Assistant Surgeon. Granted four days' leave of absence, without pay, from December 28, 1912. **Geddings, H. D.**, Surgeon. Granted one month's leave of absence on account of sickness from January 7, 1913. **Grubbs, S. B.**, Surgeon. Relieved from duty as chief quarantine officer of Porto Rico, and directed to proceed to Providence, R. I., and assume charge of the Service at that port. **Hasseltine, H. E.**, Assistant Surgeon. Leave of absence for two months and fifteen days from October 27, 1912, amended to read "two months' leave of absence from October 27, 1912." **Light, S. D. W.**, Acting Assistant Surgeon. Granted thirty days' leave of absence from January 4, 1913. **Markoe, W. W.**, Acting Assistant Surgeon. Granted twenty-two days' extension of annual leave of absence on account of sickness from December 10, 1912. **Simpson, French**, Passed Assistant Surgeon. Granted fifteen days' additional leave of absence from January 9, 1913. **Vogel, C. W.**, Passed Assistant Surgeon. Granted four days' leave of absence from January 11, 1913. **von Ezdorf, R. H.**, Surgeon. Directed at the request of the Kentucky State Board of Health to proceed to certain ports in the States of Kentucky, Illinois, and Tennessee for conference with State boards of health for adoption of measures to prevent spread of cerebrospinal meningitis. **Warren, B. S.**, Passed Assistant Surgeon. Directed to proceed to certain points in Maryland and West Virginia to investigate the smallpox situation and to recommend measures for the suppression of the disease. **Wertebaker, C. P.**, Surgeon. Granted thirteen days' leave of absence from January 10, 1913.

Board Convened.

Board of medical officers convened to meet at the call of the chairman for the purpose of preparing a revision of the regulations for the government of the United States Public Health Service. Detail for the board: Assistant Surgeon General A. H. Glennan, chairman; Assistant Surgeon General W. C. Rucker; Assistant Surgeon General J. W. Trask; Surgeon John F. Anderson; Passed Assistant Surgeon B. S. Warren, recorder.

Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 18, 1913:

Givins, George G., Lieutenant, Medical Corps. Relieved from duty at Fort D. A. Russell, Wyo., and ordered to camp near Sierra Blanca, Texas, for duty. **Harwood, Thomas E., Jr.**, Lieutenant, Medical Corps. Left Fort Caswell, N. C., en route to Fort Moultrie, S. C., for temporary duty. **Huntington, Bert R.**, Lieutenant, Medical Corps. Granted thirty days' leave of absence. **Lincoln, Henry F.**, First Lieutenant, Medical Reserve Corps. Granted leave of absence to terminate at such time as will enable him to sail for the Philippine Islands on April 5, 1913. **Lyster, William L.**, Major, Medical Corps. Granted leave of absence for two months on surgeon's certificate of disability. **Meehan, John W.**, Lieutenant, Medical Corps. Relieved from duty at Fort Slocum, N. Y., and ordered to proceed to Fort Sam Houston, Texas, for duty. **Patterson, Edwin W.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort D. A. Russell, Wyo., and ordered to proceed to Fort Hunt, Va., for duty. **Reno, William W.**, Major, Medical Corps. Granted leave of absence for two months. **Winter, F. A.**, Lieutenant Colonel, Medical Corps. Will proceed to New York city with reference to the semiannual purchase of medical supplies. **Wood, Neal N.**, Lieutenant, Medical Corps. Relieved from duty at the Presidio of San Francisco, Cal., and will proceed to Fort Apache, Ariz., for duty.

Each of the following officers is relieved from duty at the station designated after his name, to take effect at such time as will enable him to comply with this order, and will proceed at the proper time to San Francisco, Cal., and

take the transport to sail from that place on or about May 5, 1913, for the Philippine Islands, and upon arrival at Manila will report to the commanding general, Philippines division, for assignment to duty: First Lieutenant Edgar D. Craft, Medical Corps, Fort du Pont, Del.; First Lieutenant Francis X. Strong, Medical Corps, Jefferson Barracks, Mo.; First Lieutenant Henry C. Maddox, Medical Corps, Fort Moultrie, S. C.; First Lieutenant John J. Reddy, Medical Corps, Fort Jay, N. Y.; First Lieutenant Edward C. Register, Medical Corps, Fort McPherson, Ga.; First Lieutenant Frederick C. A. Kellam, Jr., Medical Corps, Fort Clark, Texas; First Lieutenant Henry C. Bierbower, Medical Reserve Corps, Fort Robinson, Nebr.

The following named officers are relieved from duty in the Philippines Division, to take effect on or about May 15, 1913, and will proceed at the proper time to the United States, and upon arrival will report by telegraph to the adjutant general of the army for further orders: Captain Ernest G. Bingham, Medical Corps; Captain Haywood S. Hansell, Medical Corps; Captain Orville G. Brown, Medical Corps; Captain Craig R. Snyder, Medical Corps; Captain Corydon G. Snow, Medical Corps; Captain William P. Banta, Medical Corps; First Lieutenant Charles H. Stearns, Medical Reserve Corps.

Births, Marriages, and Deaths.

Married.

Orton—Boynton.—In Salem, N. Y., on Wednesday, January 8th, Dr. Zenas Van Dusen Orton, of Schenectady, and Miss Corinne Pearl Boynton.

Died.

Aldrich.—In Manchester, N. H., on Tuesday, January 14th, Dr. Ezra Barnes Aldrich, aged seventy-two years. **Beard.**—In Shelbyville, Ky., on Thursday, January 9th, Dr. William Force Beard, aged seventy-seven years. **Bothfield.**—In Newton, Mass., on Sunday, January 12th, Dr. James F. Bothfield, aged forty-seven years. **Boyd.**—In Chicago, on Thursday, January 9th, Dr. Robert D. Boyd, aged sixty-seven years. **Clarke.**—In Auburndale, Mass., on Monday, January 13th, Dr. Mortimer H. Clarke, aged fifty-two years. **Dierking.**—In Oolitic, Ind., on Saturday, January 11th, Dr. Albert W. Dierking. **Drake.**—In Kansas City, Mo., on Thursday, January 9th, Dr. Nelson Asath Drake, aged seventy years. **Greene.**—In Grand Rapids, Mich., on Thursday, January 9th, Dr. Wheeler Greene, aged seventy-six years. **Grove.**—In Galva, Ill., on Tuesday, January 7th, Dr. William A. Grove. **Hanson.**—In San Francisco, Cal., on Monday, January 6th, Dr. George Franklin Hanson. **Jenkins.**—In Boonshill, Tenn., on Monday, January 6th, Dr. Thomas Jenkins. **Jerolds.**—In Jeroldstown, Tenn., on Saturday, January 4th, Dr. M. F. Jerolds, aged ninety-one years. **Jones.**—In New York, on Tuesday, January 14th, Dr. Henry Woodward Jones, aged sixty-four years. **Kierulff.**—In Los Angeles, Cal., on Saturday, January 4th, Dr. Benjamin Franklin Kierulff, aged seventy-five years. **Kingsley.**—In Danville, Ill., on Saturday, January 11th, Dr. Virgil C. Kingsley, aged fifty-seven years. **McGrew.**—In Pittsburgh, Pa., on Monday, January 13th, Dr. William Edward McGrew, aged forty-seven years. **McKee.**—In Wilkes-Barre, Pa., on Monday, January 13th, Dr. Frank L. McKee, aged sixty years. **Nelson.**—In New York, on Wednesday, January 15th, Dr. Wolfred Nelson, aged sixty-six years. **Pillow.**—In Butler, Pa., on Saturday, January 11th, Dr. Raymond H. Pillow, aged fifty-nine years. **Richardson.**—In Janesville, Wis., on Sunday, January 5th, Dr. J. B. Richardson, aged eighty years. **Shirley.**—In White Hall, Ill., on Friday, January 10th, Dr. Edward K. Shirley. **Syrett.**—In West Springfield, Mass., on Sunday, January 5th, Dr. Edgar Charles Syrett, aged forty years. **Titus.**—In Oshkosh, Wis., on Wednesday, January 8th, Dr. William H. Titus, aged sixty-five years. **Underhill.**—In Berkeley, Cal., on Saturday, January 4th, Dr. William Webb Underhill, aged fort-three years. **Winsborough.**—In Kansas City, Mo., on Friday, January 10th, Dr. Joseph W. Winsborough, aged eighty years.

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Original Communications.

THE CURABILITY OF CERVICAL CANCER OF THE UTERUS.*

*The Need of Educating Lay People and Doctors
on the Necessity of Early Recognition.*

By LE ROY BROWN, M. D.,
New York,
Surgeon to the Woman's Hospital.

The glands in the region of an early cancer of the uterus are not usually involved in the cancerous invasion so long as the disease is confined to the cervix. Cullen (1) was the first to bring out this, in 1900, by showing that in operable cases only a small part were accompanied by metastases of the regional glands. Winter (2) found a similar absence of involvement of the glands in forty-two out of forty-four autopsies on patients in whom the cancer was confined to the uterus. Shauta (3), in sixty autopsies on patients dying with cancer of the uterus, forty of whom died from exhaustion, having had no operation, found that twenty-six showed no involvement of the pelvic glands.

Wertheim (4), in the splendid monograph in which he discusses the results of the extended abdominal operation in 500 cases of cancer of the uterus, while adhering to his principles of removing all enlarged pelvic glands, states, however, that there were forty-one such cases in the 500 operations; and of these cases of gland involvement only five passed to the fifth year limit of freedom from recurrence.

Surgeons are almost universally in accord that in the large majority of cases the extension of the process in the early or operable stages is by continuity into the surrounding tissue, and that our hopes of curing our patients are in the wide extent of removal of this tissue in the vicinity of the involvement.

In the early operations of slightly over fifteen years past, the removal of the uterus by the vagina, or a high excision in early cases, either by the knife or cautery, was all that could be done. The nearness of the ureters prevented active excision wide of the diseased area. Every operator knows that in recurrences following such operations the secondary invasion is first seen in the line of incision in the vault of the vagina, the carcinomatous process was

not primarily removed during the operation. The limitation of the operability of the patient for the early simple hysterectomy was that, not only must the growth be confined to the cervix, but also that the uterus must be free, and that the bases of the broad ligaments must show no infiltration. Under such favorable conditions, from ten per cent. to twenty per cent. of those operated on were saved for useful lives.

The possibility of benefit from the simple hysterectomy must be confined to the very few in whom the involvement is discovered in its incipency, and it is in such very early conditions that I feel that the operation should be favorably considered, even in the light of our present knowledge. It has a minimum death rate of two to five per cent; the recovery is even; the complications are nil; and the chances of a cure are fair. I believe that such a choice would be justified as against the more extended operation, which, though carrying with it a greater possibility of a cure, yet also bears a higher immediate mortality and a recovery with possibilities of complications and disagreeable sequelæ.

Schuchardt, recognizing the futility of operations on cases with involved broad ligaments by the accepted methods of the day, developed and laid before the profession, in 1893, the technic of the extended vaginal operation in which the ureters are isolated, pushed out of the way, and the uterus is removed with a wide attached cuff of the vagina (one third), together with a wide extent of the parametrium.

Shauta, two years later, modified this operation in making the perineovaginal incision as a later step in the operation, instead of at the beginning as laid down by Schuchardt. With this modification, Shauta has pushed the extended vaginal operation well forward, and reports in the year 1911 (5), 445 operations for the ten previous years, with a total mortality of 8.9 per cent. Of this number, 211 had been operated on five years earlier; seventy-three or 39.7 per cent. showed no recurrence after this interval.

By exposing and pushing aside the ureter in this technic, a far wider field of removal is possible, and the number of patients who can be given the benefit of an operation is greatly increased.

He divides, in one of his statistical tables, the operations on 162 patients into three classes: Those showing no involvement of the bases of the broad ligaments; those in which the bases of one or both broad ligaments were involved, and, lastly, those in which the cancerous process was so far extended

*Read before the Alumni Society of the Lying-in Hospital.

that it was doubtful if any operation could be of benefit.

In the first class of cases, there were forty-two, to which by the old measure of operability the simple vaginal hysterectomy would have been applicable. Under the last two classes, no operation under our former estimate would have been feasible. Of these, eighty-three belonged to the second class and thirty-seven to that in which any operation was questionable on account of the extent of invasion.

It will be seen that by the extended vaginal operation, 120 patients out of 162 were given the benefit of surgery with the reasonable chance of a permanent cure, which would have been denied them under the limitations necessary for ordinary vaginal hysterectomy.

While Shauta and his adherents were perfecting their technic by the vaginal route, the majority of operators were doing similar work through the abdomen. Clark and Ries, of America, independently of each other, in 1895, suggested the extended abdominal operation, which involved not only the extirpation of the uterus with a large portion of the parametric tissue, together with one third of the vagina, but also a removal of all vaginal glands possible in the pelvis.

This operation carried with it such high mortality (thirty per cent.) that few surgeons in America would adopt it, and even at present, though the mortality has been reduced from eight to fifteen per cent., the collection of statistics in 1912 (6) gave hardly more than 500 cases for America. Abroad, however, the temperament of the surgeon and his large clinical material under absolute control, enabled them to bring the technic of the extended abdominal operation to the state of the present perfection.

Wertheim, whose name is chiefly associated with the abdominal operation, introduced the use of the vaginal clamp, by which the vaginal tube was completely closed before it was cut across in the last step in the removal of the uterus, and by so doing minimized the possibility of sepsis, which was, prior to this suggestion, of frequent occurrence. He also introduced the use of the parametric clamp for use in removal of the parametric tissue, and thereby prevented what at times is embarrassing venous bleeding.

An incomplete list of the radical operations done by foreign surgeons was collected by Jacobson, in 1910. The number was 2,647. While incomplete at that time, it falls far short by fully an equal number of that of the present day.

To these surgeons we are indebted for our present knowledge of the life saving value of the wide extirpation of the uterus, whether by abdomen or by vagina. Weibel, the first assistant in Wertheim's clinic, on his recent visit to America, during the late surgical congress in New York, presented the latest results from the clinic of his chief as follows:

From 1898 to 1912: 1,430 cases seen in clinic; 71 refused operation; 689 inoperable; 675 extended radical operations; 50 per cent. operability. The mortality, while thirty per cent. in the first 100 cases, had been reduced in the last 174 consecutive cases to nine per cent. The freedom from recurrence after five years is, including primary deaths, forty-three per cent; excluding the primary deaths, fifty-three per cent.

It will be seen that through the extended operation by the abdomen or vagina, considerable tissue is removed beyond the uterus, and by so doing the field of application of the operation is not only largely increased, but the possibilities of a permanent cure are equally so.

The measure of value of any operation is to what extent it is curative in every instance of the disease for which its removal is intended. Measuring the value of operations for cancer of the uterus by this criterion, or establishing what is known as their absolute efficiency, we have:

For the extended vaginal operation the statistics of Shauta give, in 1911, the absolute curative efficiency of this method with cancer of the cervix as 16.1 per cent.

Wertheim, in his 1912 statement, gives the absolute curative efficiency of his operations by the abdomen as 19.5 per cent. The value of the simple hysterectomy, either by vagina or abdomen, is not so well established. It cannot be, however, over from eight to ten per cent.¹

We have no established means at the present time of treating cancer, except by removal in a surgical manner. The small efficiency of this, our sole hope, is only 19.5 per cent. at the highest, for the reason that the largest number of cases presenting themselves are beyond the possibility of relief. If the ideal could be reached and all patients should seek trained operative assistance at the earliest advent of the symptoms, the absolute efficiency of surgery would reach at least the present freedom from recurrence for five years, which is in Wertheim's report forty-three per cent., and the operability fully ninety per cent., there being a few cases giving no symptoms until beyond operative measures.

The average operability of patients applying in nine of the large foreign clinics is sixty per cent. In America, with the exception of the Johns Hopkins Clinic announcing sixty per cent., there is scarcely any clinic that can give over twenty-five per cent., the difference between the foreign and our clinics being due partly to education and partly to centralization.

The hope of the unfortunate patient is early diagnosis and early treatment, and it is the duty of every surgeon to impress upon the entire physician body the absolute necessity of being keenly alive to the first symptoms of cancer; to insist on an examination, and to insist on a properly trained man seeing all suspicious cases. This can be done only by constantly and frequently calling the physician's attention to this subject.

Our duty does not rest here, but similar educative efforts should be directed to instructing nurses and midwives and druggists, all of whom frequently come more intimately in contact with patients who often talk to them of symptoms, which they may hesitate or regard as too trivial to bring to the notice of a physician.

To Winter we owe more than to any one else the educative crusade that originated in Prussia, and through his efforts has been attracting the attention of almost every country. I cannot do better than to quote a few extracts from his address before the

¹Von Ott recently reports fifteen per cent. of absolute cures in vaginal hysterectomy.

German Central Committee for Cancer Investigation in March, 1911 (7):

He states that despite great advances in medicine the prophylaxis is the most important feature, and to secure this we must have the cooperation of the

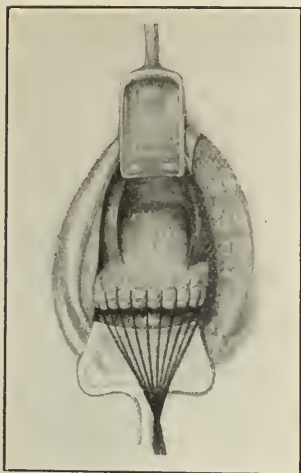


FIG. 1.



FIG. 2.

FIG. 1.—(Shauta.) The circular incision of the vagina has been made fully one inch below the cancerous invasion. The vaginal cuff has been separated to the cervicovaginal junction. The cuff has been stitched together with strong silk sutures left long for the purpose of traction. The bladder has been separated for a part of the way and the pillars of the bladder show prominently. The perineovaginal incision has been made on the left extending from the circular incision of the vagina laterally through the perineum to the point on the level with the anus.

FIG. 2.—(Shauta.) The pillars of the bladder have been separated from the uterine side. The rectum has been separated. The ureter is exposed as it passes through the ureter slit in the base of the broad ligament. The uterine vessels above the ureter are exposed and surrounded by a ligature. The uterus being pulled well to the opposite side.

public. This we have in tuberculosis, syphilis, and other infectious diseases, through enlightenment of the people in avoiding infection. In cancer the problem is different. We do not seek to protect the healthy from contagion, but from the consequences of their own neglect. The necessity of enlightenment is a product of modern surgery. The

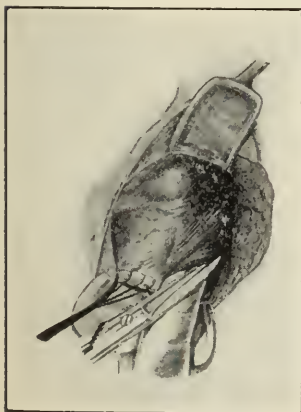


FIG. 3.

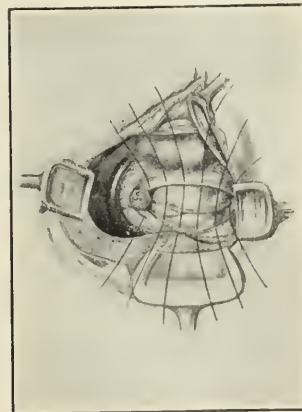


FIG. 4.

FIG. 3.—(Shauta.) The parametric tissue is being divided close to the side wall of the pelvis with the finger posterior and the retractor anterior as protections. The bleeding, which is venous, is subsequently checked by gauze, temporarily placed.

FIG. 4.—(Shauta.) The uterus with the wide portion of parametric tissue of both sides has been removed. The tubes and ovaries have not been removed, being tied off. These stumps have been brought down between the edges of the peritoneum and fixed in this position. Sutures have been passed preparatory to closing the peritoneum.

highly unsatisfactory results, even of the widest operations, make it necessary first of all to secure for the public early diagnosis and early operation. We do not know how many years will elapse before we cease to cure cancer by operation, but whatever the methods of the future—radiotherapy, chemical remedies, or immune sera—we must still have early diagnosis and treatment. The enlightenment is therefore something permanently necessary.

The basic ideas as to enlightenment in respect to cancer are:

1. To cause the patients to seek medical advice at the earliest possible moment and to confirm in them the belief that only through the earliest possible medical treatment may their imperilled existence be maintained.

2. To educate all classes of people to whom patients are inclined to turn for advice, so that they may be able to recognize the disease at the earliest moment and to eliminate all advisers who have not the expert knowledge.

Winter began his educative campaign in 1903 from Königsberg, Prussia, with the following plans:



FIG. 5.

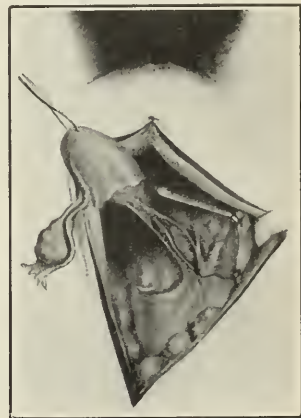


FIG. 6.

FIG. 5 (Shauta.) The peritoneum has been closed. The tubal stump of one side is seen fixed extraperitoneally. The vaginoperineal incision is well known. This as a final step is closed by layer sutures. The raw surface is loosely packed with gauze, which is removed at the end of the eighth day.

FIG. 6.—(Wertheim.) The infundibulopelvic and round ligament of one side have been tied and divided. The folds of the broad ligament have been separated and the ureter located.

1. To send to every physician a little pamphlet on early diagnosis.

2. By means of a leaflet, sent to each midwife, to induce the latter to refer all suspects to a physician.

3. To instruct the public, by means of statements in the newspapers, in regard to the early symptoms of cancer and to influence them to seek an expert adviser at the earliest opportunity.

The results of the campaign are graphically shown in the attached chart of Winter (Fig. 14). The first period, 1898 to 1902, shows the condition of affairs before the special action had been taken: the second, 1903, comprises the year that immediately followed the institution of the campaign; the third, 1905, gives the results of an investigation made two years later, to determine what lasting effects it had had; and the fourth, 1910, shows the present status of the situation. The data were ob-

tained from the records of the clinic and from the reports of specialists.

Curve 1 shows the effect upon the physicians, the criterion here being whether or not an internal examination had been made by the physician to whom

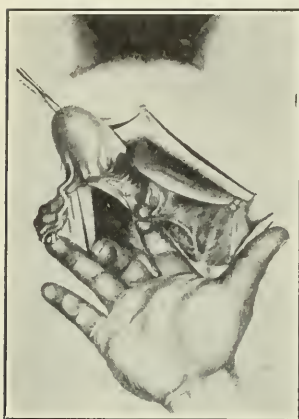


FIG. 7.

FIG. 7.—(Wertheim.) Along the ureter as a guide the finger is pushed under the uterine vessels. The vessels being isolated are tied off near their origin.

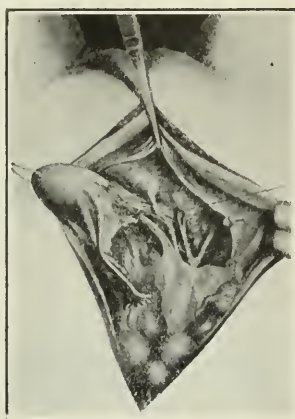


FIG. 8.

FIG. 8.—(Wertheim.) The uterine vessels being tied and divided, the ureter is laid bare to its vesical entrance. This at times is simple, at others the separation is difficult on account of the exudate.

the patient had applied for advice (it will be seen that even now this is true in only ninety-one per cent. of the cases). Curve 2 shows the action of the midwives, the percentage here being based on the criterion whether or not a suspicious case applying to a midwife had been immediately referred to a physician. Curve 3 is an especially important one, as it shows the attitude of the patients themselves; it was obtained by reckoning the percentage of patients who had sought advice within three months of noticing the first symptoms. Curve 4 gives the percentage of operability, and therefore



FIG. 9.

FIG. 9.—(Wertheim.) The uterosacral ligaments are clamped off close to the rectum including all parametric tissue possible.

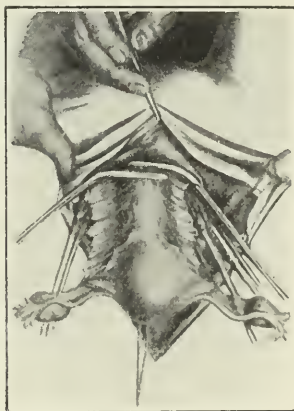


FIG. 10.

FIG. 10.—(Wertheim.) The uterosacral ligaments have been divided. The rectum has been separated posteriorly and the bladder anteriorly. Both are pushed away from the vagina for fully an inch below the invasion of the cancer. After this separation strong upward traction is made on the uterus, thus lifting up the surrounding parametric tissue. While in this position the parametric tissue is clamped off as close as possible to the side walls, the parametric clamps of Wertheim being of much value here. The vagina is now cleaned out prior to applying the occluding vaginal clamps fully one inch below the cervical involvement.

represents, to a certain extent, the resultant of all the others.

The striking fact shown in this chart is the splendid manner in which the midwives have responded to the teaching given them, and another in the general though moderate response of both patients and general physicians. The fall of the indicating lines in 1905 illustrates how quickly impressions are lost upon all of us unless the subject in hand is kept constantly before us, for at this time Winter might have been said to have "taken stock" after the active efforts of the period before. In America, up to the present time, no active steps have been taken by societies as a body, though efforts have been

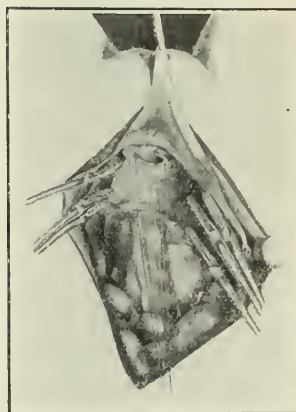


FIG. 11.

FIG. 11.—(Wertheim.) The parametric tissue is divided close to the applied clamps. The vagina is now again cleaned out and cut across below the occluding clamps. The tissue within the bight of the clamps is tied off. Gauze is loosely packed in the raw cavity protruding from the vagina, care being exercised not to use sufficient to touch or press on the exposed ureters. The peritoneum is finally closed over, leaving the field of operation extraperitoneal.

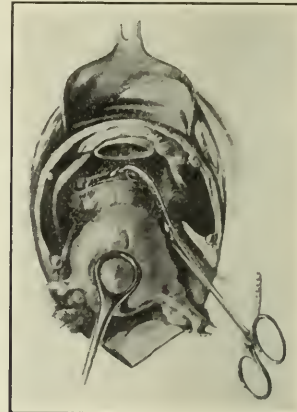


FIG. 12.

FIG. 12.—(Sigwart-Bumm.) The ureters have been exposed and isolated to their vaginal entrance, the uterosacral ligaments tied off, the rectum and bladder separated fully one inch below the cancerous invasion. The special occluding vaginal clamp of Sigwart has been applied to the vagina. The vagina is cleaned and then cut across. By upward traction on the uterus the attached parametric tissue is pulled well up and made very accessible. Note the exposed ureters and the parametric tissue being pulled up between them and the uterus. In this stretched condition it is clamped or tied off.

made and committees appointed within the last few years. One of these committees has been instructed to report ways and means of undertaking such an educational crusade to a national society for their consideration at its next meeting in Washington during the coming spring. Much can be done in this educational line throughout the country when such an effort receives the endorsement of a society of national recognition, and much also is to be done by every local medical society undertaking as a part of its duties the

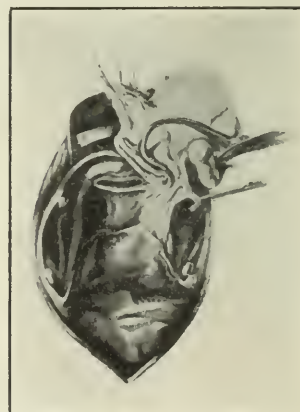


FIG. 13.—(Sigwart-Bumm.) The parametric tissue has been divided on one side and is shown well exposed on the other prior to being divided.

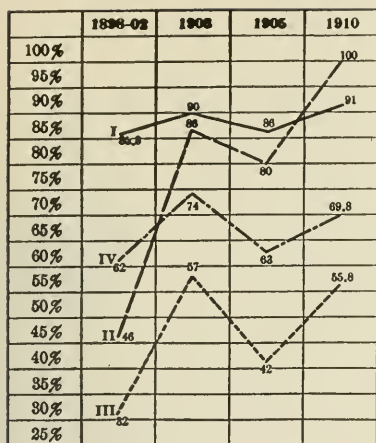


FIG. 14.—Winter's chart.

individuals in the light of such crusaders for fear of being misunderstood and our efforts being misconstrued. Societies, however, can do this, and we as individual members of these societies can do our part in our communities as the representatives.

For the purpose of showing plainly the steps of the modern operations for removing as much as possible the parametric tissue surrounding the uterus, I include the cuts taken from Wertheim, Sigwart, of Bumm's clinic, and from Shauta. To each is an explanatory legend of the steps intended to be illustrated.

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148 WEST SEVENTY-SEVENTH STREET.

THE NEWER TEACHINGS OF DISEASES OF THE GASTROINTESTINAL CANAL.

BY MARK I. KNAPP, M. D., LL. M.,

New York.

V.

EXAMINATION FOR THE FUNCTIONS OF THE STOMACH.

The mechanical and chemical functions of the stomach are ascertained by means of the so called test meal. There are a variety of test meals proposed; but the one which I have been using is the so called Boas-Ewald test breakfast, which consists of thirty-five grammes of roll and 300 c. c. of water. It is urged against this test meal, that it does not sufficiently excite the action of the stomach, that it does not sufficiently stimulate the gastric mucosa. I cannot concur with this view; this meal is sufficient for all purposes. It is true that the quantities here given are entirely arbitrary and are taken from the fact, that in Berlin, where this meal originated, a roll, with which two glasses of water are taken, weighs about thirty-five grammes, the glasses containing about 300 c. c., together. We might, to be sure, accept another standard; but, once having accepted this, it is desirable that the test meals be made uniform, and certainly this test

teaching of all in its own locality. By such efforts, earnest and without thought of self, many lives can be saved. For such an effort to be undertaken by individuals is impractical and far too great an undertaking. We in America shrink from appearing before the public as

meal has the advantage of being simple and adequate. By this test meal we ascertain the condition of the muscular and mucous coats and also the state of the contractility of the sphincters of the stomach. For performing this examination, we need a stomach tube, an aspirator, and the test meal.

The stomach tube is a soft rubber tube, usually of about one quarter inch lumen and about twenty-five inches long. The tube should not be too soft, but should have sufficient firmness, without being too hard. There are two kinds of stomach tubes used. In one kind the distal end, that is that end which goes into the stomach, is open; in another kind, the distal end is closed. This latter kind is to be preferred, because of the greater ease with which it goes through the esophagus, not scratching anywhere. Usually there are two large oval openings near the distal end of the tube, one above and opposite the other. There may also be some smaller, circular openings. The object of the multiplicity of these openings is, that in case one



FIG. 1.—Showing the normal heart line; a line drawn from the thyroid cartilage through the left nipple gives the boundary of the absolute dullness of the heart.

is obstructed, the other may remain to function. The proximal end of the stomach tube is lengthened by the addition of two pieces of soft rubber tubing, each about six inches long and connected alternately by pieces of glass tubing with the stomach tube, all of which are of the same lumen as the latter. The object of the intervening glass tubing is to enable us to see the character of the contents we aspirate and, if necessary, to prevent certain contents from entering the aspirator. Assuming, as so often happens, that after a certain quantity of chyme has already been aspirated, blood should be seen coming through the first piece of glass and we did not want the blood to mix with the chyme, which is already in the aspirator, the second piece of the additional rubber tubing is instantly compressed and the aspirator is detached from the stomach tube. By means of the second piece of glass tubing, we can see that no blood has passed

into the aspirator. Were there only one piece of glass tubing we could only tell that blood had passed, but could not tell whether any blood had already entered the aspirator. For the same reason the additional pieces of rubber tubing should be of sufficient length to give us time to check undesirable contents entering the aspirator. Assuming that, instead of blood, the first glass tubing shows that duodenal contents are coming, which we should like to catch separately; if we had no intervening glass tubing we could not tell what was being aspirated nor could we get the various contents separately.

Stomach tubes are purchasable ready made. But occasionally we may have to make our own stomach tubes. This is easily done, if we have the necessary



FIG. 2.—Passive palpation of the abdomen, showing the flexed position of the palpator's finger.

rubber tubing. The proper length is first cut off and two oval openings are made near the distal end with a pair of scissors. The end of the tubing and the two openings are then smoothed off with a red hot iron or glass rod, and the sticky rubber, resulting from that smoothing process, is then washed off with chloroform or ether. I have repeatedly made my own stomach tubes by this process.

The aspirator is a pear shaped rubber bulb—a Pollitzer bag without a valve—of a capacity of 250 to 300 c. c., and must be of sufficient power to insure easy aspiration. A soft, thin bulb will not have the necessary aspirating force. The end of the rubber bulb has a hard rubber ring into which fits a hard rubber nozzle. This nozzle is about two inches long, tapers off slightly at each end, and has a bore of one quarter inch. The object of the



FIG. 3.—Stomach tube, connected by glass tubing to two pieces of rubber tubing.

tapering ends is that the nozzle may fit easily and tightly into the aspirating bulb and into the stomach tube.

May we now introduce the stomach tube; are there any contraindications to the introduction of the tube? Objections and contraindications are cited in the textbooks, such as diseases of the heart,

diseases of the lungs, diseases of the aorta, pregnancy, etc. Why? This is not explained. Why should a soft rubber tube not be allowed to pass the esophagus, while a bit of bread with ragged and pointed ends is given that privilege? I know of but one contraindication to the introduction of the tube, and that is, when one has not sufficient dexterity. I have introduced the stomach tube and washed the stomachs of patients in the last stages of tuberculosis, in ulcer, in pregnancy, etc., with decided benefit to the patient. As a general rule, I might say that so long as the patient can swallow hard substances, such as bread, there exists no contraindication to the introduction of the tube.

Before introducing the tube a few minor details have to be taken into consideration. The diameter of the tube may vary from the size of an ordinary catheter to about three eighths of an inch. I usually use two sizes in the same patient whom I see for the first time; a small one first, which gives less of the choking sensation when going into the fasting stomach, in order to accustom the patient to it, and a larger tube when aspirating the test meal. By this diplomatic move the patient is somewhat at ease when the test meal is to be aspirated; as a matter of fact the full stomach cannot bear the tube with the same degree of tolerance as the fasting stomach.

The patient is now seated in an ordinary chair and his clothing is protected from being soiled by the stomach contents. For this purpose I use one rubber sheet, spread over the abdomen and legs of the patient and a narrow rubber apron, which is tied in the back of his neck. The apron runs down into a white pail, and is arranged in the form of a channel; the object of this apron is to catch any stomach contents which may come up and lead them into the pail. If the patient has any false teeth, they must be removed, for fear that the patient may perhaps accidentally swallow them. However, I have many times introduced the tube with such false teeth left in position. Before attempting to



FIG. 4.—Aspirating bulb.

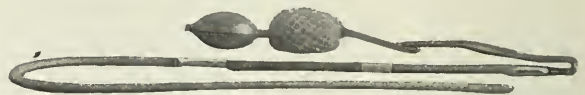


FIG. 5.—Stomach tube, connected with double bulb, ready for inflating the stomach.

introduce the tube, the patient is told what is wanted. We demonstrate to the patient the absolute impossibility of doing any harm, and try to convince him that a soft rubber tube cannot possibly hurt. We must also urge the patient to keep on breathing, for, as a rule, he momentarily suspends breathing and the consequence is that he becomes cyanotic, a thing which is liable to embarrass and frighten the inexperienced physician. The choking sensation which the patient may feel will be explained on the ground that it is something unusual, and the patient must be encouraged by telling him that he will soon introduce the tube himself and, indeed, talk and laugh while the tube is in his stomach. We must also warn the patient not to bite on

the tube, as it would prolong the procedure, although closing the lips is of advantage in introducing it.

The patient is now ready. The physician stands at the right side of the patient, putting his left arm around the back of the neck. By this position we accomplish two very important things. First, our arm gives the patient an agreeable support to his back; and, second, with our arm around the back of the patient's neck, the most robust patient is entirely under our physical control; the patient cannot get away from us. We then attempt to introduce the tube, which has previously been immersed in water; no other lubricant is necessary. With our left arm around the back of the patient, our left hand is kept close to the patient's mouth, and with the left thumb and index finger we hold the proximal end of the tube so that the opening points away from us. The object of this is, that in case any contents shoot out of the stomach, they cannot soil us. The distal end of the tube—that part which goes into the stomach—is now taken between the thumb and index finger of the right hand in the manner in which we hold a pen, and is introduced into the patient's mouth, passing first between the index and middle fingers of the left hand which is kept close to the patient's mouth. Lateral motion

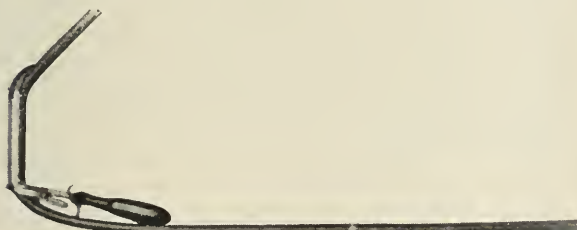


FIG. 6.—Showing author's stomach tube director with stomach tube inserted.

of the tube is thereby prevented, whereby the tube takes a truer course. The tube is directed toward the hard palate and, as soon as we feel that the tube is at the pharyngoesophageal opening—a sensation which we get by training—the patient is told to swallow and keep on breathing deeply. The tube is now fed into the esophagus until the stomach is reached. The tube may be arrested, either at the first or the second normal constriction of the esophagus, may bend upon itself, and return into and out of the mouth. This happens quite frequently. Or, the patient may involuntarily move his tongue while the tube is still in the oral cavity and with his tongue direct the tube out of the mouth, or he may direct it upward and the tube then comes out from the nose. This has happened to me twice. It is not necessary to have the patient protrude his tongue or put our finger, as a guide, into the patient's mouth. The patient may perhaps become cyanotic, but this need not cause any alarm, as it is due only to a momentary cessation of the breathing, caused by his effort to expel the tube, in which effort the patient might succeed, did we not hold the tube with our right hand. The aspirating rubber bulb, which has been kept conveniently at hand is now connected with the proximal end of the tube, after the tube has entered the stomach. But before connecting it, it is first compressed with our free right hand, so as to produce suction. All this time

the left hand remains busy, holding the proximal end of the tube. Getting hold of the aspirator, adjusting, and connecting it must all be done quite rapidly with the right hand only. In removing the tube from the stomach, we again have the tube pass between the index and middle fingers of the left hand, being very careful to catch the stomach end of the tube. If we pull the tube out, without having it pass through the fingers, the stomach end, as it comes out, may swing around and soil both ourselves and the patient. If the aspirating bulb fails to distend after its having been connected with the stomach tube, it shows that there is some obstruction in the stomach tube, which may be due to the fact that the stomach tube has bent upon itself within the esophagus, or that the tube is obstructed



FIG. 7.—Showing position of patient and nurse or physician with stomach tube already in the mouth of the patient; the tube is then fed into the patient's stomach.

by some contents. Under such circumstances the aspirator is disconnected and then reconnected with tube without first compressing it. After the aspirator is connected, it is compressed, which act is sufficient to empty the tube of any obstruction. If compression fails, we are sure that the tube is not in the stomach, but in the esophagus. The tube is then removed and again introduced.

This is my usual way of introducing the stomach tube. Whenever this method fails, which is very seldom, I use my stomach tube director, invented by me and described in the *Medical Record*, August 29, 1896. This is an instrument that no physician should be without, as he can never tell when he may have to use it and by its use save life, as it happened to me a few times, when I was called to

cases of attempted suicide. This instrument is practically a metal tube, curved at the distal end and cut lengthwise into two half tubes, both halves forming one tube, an upper and a lower half. The lower part of the distal, curved portion is absent. Thus the instrument consists of three parts: *A*, the palatal or the upper part to which it is hinged; *B*, the distal or the pharyngeal part by the hinge *E* and *D*, the lingual or the lower part. The bolts, *G*, at the distal end of the lingual part fit into corresponding notches of the pharyngeal part, *B*. The handle is firmly united to the upper, palatal part and has attached to it the trigger, *C*, which ends in the shape of a hook. This hook works on the catch *H*, which is attached at right



FIG. 8.—Showing author's modified pipette.

angle to the proximal end of the glossal part. A silk cord unites the lingual part with the handle. The longitudinal edges of the upper and lower parts are grooved so as to form flanges; the upper, palatal part is grooved out on the inside, and the lower, lingual part is grooved out on the outside. When the upper and lower parts are apposed they form one smooth circumference. The object of these flanges is to prevent the upper and lower parts from moving laterally when the instrument is closed, ready for use. To close the instrument the pharyngeal part, *B*, is raised slightly, then the handle being held in the right hand, the right thumb is placed on the lower lever of the trigger; the glossal part is taken between the thumb and index finger of the left hand and its catch, *H*, is brought within the hook of the trigger, *C*, and the flanges of the lower, lingual part are brought within the flanges of the upper, palatal part. Now the right thumb presses upon the trigger, while the palatal and lingual parts are kept in apposition with the index finger and thumb of the left hand. The trigger, *C*, acting on the catch, *H*, moves the lingual part backward; the pharyngeal part now drops down. Now the right thumb releases the trigger and the spring of the trigger moves the lingual part forward which

ment are that it may be used as a director for the stomach tube, enabling us to dispense entirely with the will of the patient. As a director it prevents absolutely the stomach tube from going anywhere but into the stomach. To use the instrument, it is first closed, then the stomach tube, dipped in water, is inserted until it protrudes a little beyond the end of the pharyngeal part. The director which now holds the stomach tube is inserted into the patient's mouth and brought gently in contact with the pharynx of the patient. The instrument is held in the left hand, and with the right hand the stomach tube is fed into the stomach. This instrument has its use in excitable persons and in cases of insanity and attempted suicide. Except in cases of attempted suicide the director can be removed after the stomach tube has reached the stomach. In cases of suicide the patient fights and bites on the instrument, and the more he bites the better the instrument holds in position. Occasionally there are scars in the esophagus at its first normal constriction opposite the bifurcation of the bronchus. In attempting to enter the stomach with the tube, touching the scar causes spastic contraction of the esophagus here, and the result is that the tube cannot get into the stomach. If we now use the director, the spasm will be overcome; the stomach tube not having any lateral motion within the director, the force applied to the stomach tube in pushing it forward has the full force exerted on the spastic contraction which will yield to such force, pushing the tube forward into the stomach.

616 MADISON AVENUE.

MEDICAL EDUCATION: AN UNSOLVED PROBLEM.*

BY ISADORE DYER, PH. B., M. D.,
New Orleans.

We are standing at the crossroads in medical education, turning to each new way with no decision, and uncertain as to the choice of direction for future effort. No analysis so far afforded is sufficient to determine an exact course, and as yet only individual opinion has obtained as the result of investigation. More than one educator has proclaimed his views, and various conferences have accumulated a variety of material which, digested, points to no conclusions. Each country engaged in the problems of medical education has moved along lines of least resistance, and the study of their methods leads to the observation that no system any where is complete and that all systems, every where, are made up of units different in their essentials.

The recent report of the Carnegie Foundation on the medical institutions in some European countries shows a careful consideration of existing customs and in these a variety of practice which, above all, shows a lack of coordination. No conclusion can be drawn as to the best of the systems described, as each has its merits, in some cases so predominant

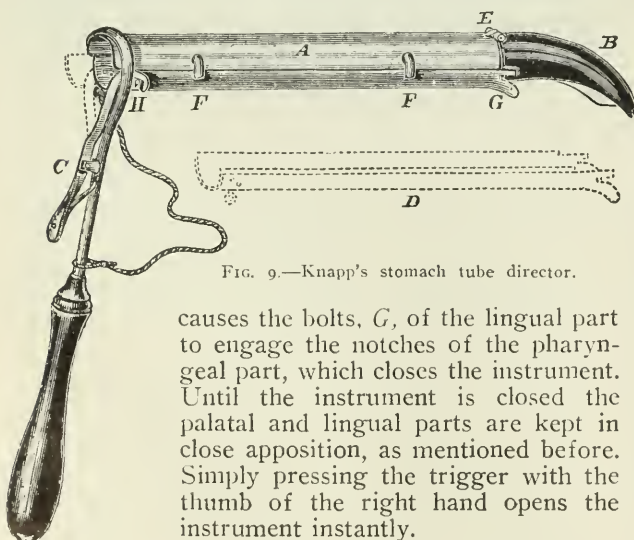


FIG. 9.—Knapp's stomach tube director.

causes the bolts, *G*, of the lingual part to engage the notches of the pharyngeal part, which closes the instrument. Until the instrument is closed the palatal and lingual parts are kept in close apposition, as mentioned before. Simply pressing the trigger with the thumb of the right hand opens the instrument instantly.

The chief advantages of this instru-

*Address delivered at the inauguration of President Brooks at Oklahoma University, October 21, 1912.

as to appeal to one point of view and in others to satisfy another point of view, but in none is there a systematic plan which can be accepted altogether. It is patent that in all countries medical education has been dependent upon certain essential economic questions and that, as any of these have predominated, the conditions have changed.

The importance of the physician in his economic relation to the public has much to do with medical education and until recent years, this relation had been far from established. Even to-day in Great Britain, the social status of the physician has not been fixed, and the dignity of the practice of medicine has not yet emerged from its medieval standing. The apothecary and the surgeon are still far apart and there is not yet a middle ground, excepting where some luminary in his individual achievement may have risen to distinction above his fellows. We have, then, yet to define the relation of the physician in the cosmic community, before we may approach the subject of his qualification to satisfy his obligations, and his right to engage them.

The contempt in which medicine as either an art or a science was held is exemplified in the life story of Rabelais, who, above all, a physician and student of medicine, was compelled to follow his scientific studies, masquerading as a priest—and even in that disguise, achieved his life's objective only under special papal authority (Paul III), and later, with the sanction of the King of France (Charles V).¹ His influence at French universities, notably Montpellier, Lyons, and Bordeaux, created a live interest in the study of the science of medicine, which beginning in the second quarter of the sixteenth century, has continued until now.

Prejudice has always stimulated true art, and in spite of the quackery and knavery in so called medical practices there have been geniuses enough, beside Rabelais, to carry the spirit of medical investigation apart from and in spite of the abuses of all times. So it is that with the achievements in medicine, we have inherited the shortcomings of its history and exactly as with all callings requiring a higher spirit for the consummation of their best endeavor, so with medicine, there has been attached to the army of earnest workers a vast concourse of hangers on, vandals often, sacrificing the cause itself for the satisfaction of selfish motives and mercenary ends.

We have, however, in this twentieth century, arrived at the crossroads, and to those who have inspiration enough there may be signals of the way which leads to the right road. We may be able to read some of them. Anciently medicine dealt solely with the cure of the sick, and symptoms were elusive and therefore only served as guides to doses and to drugs or remedies. To-day, disease is only one sign in the complex group of material evidences which point to the need of sane bodies, of the individual and of the community. Where cure was once the supreme ideal, to-day prevention is the chief aim of every student as well as of every practitioner of medicine.

The modern conception of hygiene, and of preventive medicine, which is only one field of hygiene, grows broader every day and the point of view must change with the knowledge of the conditions which are related. Not only must we take a survey of disease alone, but, of necessity, the entire fields of eugenics and of social economics are as well involved. More than this, these fields are so correlated with the problems of disease that it is not possible to divorce them nor to study any one subject apart.

The basis of sociological problems rests on heredity, environment, and the individual in his relative economic importance—and as the physical importance of the individual is most salient, the study of the individual from this point becomes paramount. No appreciation of eugenical questions can be approached without the analysis of society in its constructive units, and from a physical conception. So here, too, the field must rest on the study of the individual, in relation to his condition, type, or antecedents.

The philosophy of medical education, then, must lead us far afield, and the scope of its purviews must grow as we begin to study the question, no matter from what point we start. The traditions of medical training can only bear upon modern conceptions of medical education as in every developing art, and the older ways must be studied as mere foundations for a cultivated field of endeavor opening more and more to the minds capable of interpreting increasing knowledge and discovery. No matter what the history of medical education may teach, the fact remains that conditions have changed and that we must meet the new era on the way, lest we be overtaken. The concept of medical education must change and for the future the wisest of our preceptors must hold long sessions of a well constituted senate to debate our needs.

Medical education began in segregated groups of student teachers, in each group developing its own science or art, whether in the laboratory, clinics, or amphitheater. Here the field of medicine grew around the hospital; there out of the laboratory—but the evolutions of necessitous convention, gradually completed the medical college as a composite congress of sciences, made up of the essential branches of chemistry, anatomy, physiology, pharmacy, and their outgrowths, surgery and physic. The later interpretation of the interrelation of all of these has compelled a synthetic arrangement which now makes all subjects interdependent. Physiology is not complete without chemistry; surgery without anatomy; pathology without all three of the elemental subjects and, as the field of preventive medicine grows, the importance of biology in its chemical and physiological divisions is more and more evident.

Formerly the medical student accepted the digested and formulated theories in chemistry related to the practical fields of medicine and surgery, and the laboratory had no place in his required curriculum; in fact, the laboratory was associated with an ultrascientific spirit and it was taboo with the real doctor, who contemplated solely the mechanical relief of disease, a provision so often discounted

¹Francois Rabelais, by Arthur Tilley, M.A., in *French Men of Letters*. Philadelphia: Lippincott, 1907.

after even a limited experience with the real battle with the practice of medicine. Now the graduated physician must take a full period of laborious detail to grasp even the fundamentals of scientific medicine, and to him who wishes to walk among the elect, there must be engaged the spirit of philosophy engendered in the laboratories of research.

American medical schools as a class have been much inveighed against and the present status of medical education in this country is deplored by those who sit in judgment. But we must halt a while and study our conditions.

This is yet a new country—in medical science and in medical art—if we compare our history of some four hundred years with the thousands of years of civilized Europe. Our medical schools were originated in order to supply doctors and not to develop scientific spirit; as a matter of fact, it has only been within the last thirty years that any scientific spirit has been encouraged at any of the medical colleges in this country, and this has resulted from the individual effort of the men who composed the faculties, rather than from any outside inspiration.

Within a decade, at almost every centre offering opportunity in this country, excellent original work has been done, and in preventive medicine the United States of America holds its own with any other country—and our work still moves on. The future of medical education in this country must rest upon the State, for no matter how beneficent philanthropy has not yet responded in a way sufficiently broad or sufficiently organized to accomplish the desired result.

The health of the people is the first law. Medical bodies have organized to develop State medicine. Laws have been enacted to protect the public in matters of food supplies, water supplies, sewage, dwellings, and even in personal responsibility so far as contagious diseases are concerned. Legislation has even created boards of health with varying functions to enforce the laws and to think out the solution of health problems as they arise. International agreements have determined a comity which dictates quarantinable diseases and which recognizes the importance of a selected class of immigration. But most States have failed in the essential, above all the most important, and that is, to make provision for the training of those men and women who are to see to the enforcement of health laws and to look for the solution of health problems.

We repeat, then, the future of medical education in this country must rest upon the State! And no more opportune occasion could be afforded than the present to indicate the degree of responsibility involved. The physician is above all a citizen, clothed with the importance of a calling which at birth and at death demands his presence. At every step in life he sits in judgment on the progress of the human subject—invested with a decision which determines the degree in which his fellows may occupy the stage. It is he who fixes the responsibility in crime, adjudges the defective child or man, determines the degree of incapacity of the mentally unsound, holds the watch as death speeds with sci-

ence in the race against disease. It is his province to condemn the victim of incurable disease, to assuage the contemplation of a certain end, and to tide over a surcharged mind not ready for the final plunge. The yoke of civic cleanliness, the burden of pest and disordered health are his to bear and, in return, he often yields his own life as a part of the cost of a neglected obligation of the State.

The State is responsible for its citizens, and no greater responsibility exists than the proper education of its physicians. The legislatures of many States have declared that it is not within their province to provide education for professional schools, and they include medical schools in this category. Even where medical colleges form a part of State universities their support is often precarious, because no special provision is made for them and because they must depend on the attendance of students to make the instruction possible.

Medical education is the most expensive to the institution giving it, of all forms of education—an almost obvious statement when the constructive character of a medical course is considered. A survey of the leading first class colleges of medicine in this country shows an attendance varying from two hundred to four hundred students, with fees for students ranging from fifty to two hundred and fifty dollars a session and with annual budgets estimated between ninety and two hundred and fifty thousand dollars. But even at an expense for the education of each student which averages more than twice as much as he pays, the education received at most of these schools is not adequate when the future of the student is considered and his responsibilities are estimated.

Medical education should be absolutely free, but the qualifications of the student and of the graduate should be so rigidly determined that there need be no question of his preparation, nor of the estimate of his calling. To accomplish such an idealistic condition, even in degree, each State should endow its medical school, and each State should have its own school, and there should be but one such in each State, that the school should be above all need of calculating the possibilities of existence.

Then, and then only, can it be possible, at that same crossroad, to determine the future of medical education. Meantime, those of us who are denied the sustenance of an exacting mother, that is, our controlling State, may dream out the lines of such a medical education as we should wish our son's sons to have and the sons of our citizens to have hereafter.

The analysis of opinion thus far derived as expressed through the requirements of the Council on Medical Education of the American Medical Association and of the American Medical College Association, and as recommended by the Carnegie Foundation for the Advancement of Learning would resolve itself into a scheduled plan consisting of

Eight years of primary education, as in the public schools;

Four years of secondary education, as in the high schools;

One or two years in a standard college;

Four or five years in a medical college in which the elemental sciences are taught by full time professors and where practical and clinical branches are taught by professors devoting most of their time to these subjects. The fifth year contemplates hospital service with at least twelve months' experience.

The student, then, who aims at an ordinary medical education must spend seventeen or eighteen years in obtaining it, and to begin his life's work at twenty-five years of age he must begin his schooling at the age of seven or eight. If he is an average scholar and student he will finish on scheduled time—otherwise, he may not qualify before he is twenty-seven or twenty-eight years of age. Then his struggle starts, and he is easily thirty to thirty-two years of age before the beginning of success comes to him; often the intervening years are spent in satisfying the obligations of a financial character incurred as a student.

We may not change these things, but while we are debating the various phases of medical education, we should think of the future generations of physicians and find some way of making them ready before the life work begins. The large percentage of graduated physicians who do not finally follow the field of their choice argues that there is something wrong in the pedagogic presentation of medicine as a calling. Many students, we know, go into medicine because it offers, in this country, a position in the social scale perhaps above that of their forbears; other students look upon the prospect of medical practice with a degree of mysterious longing for the insight into a field of special knowledge. Then there are those who see the more successful worldly doctor in his house of ease, and believe that the practice of medicine offers a simple way to a good livelihood. There are few who go into medicine from the humanitarian spirit, or even because of the scientific outlook afforded—both of these may be grafted on afterward.

This discussion has been presented to begin the argument for a revised view of medical education, and to submit that the education of the young school boy in vocational opportunities and obligations should be systematically undertaken. The school boy should know what the study of medicine costs in time and in money and he should know that of all the fields of professional endeavor it offers least in wage. As he advances to his more mature studies, the opportunities for scientific knowledge should be pointed out and his course so planned that he should be ready to undertake the work with proper training.

The predominating influence of the materialistic and utilitarian practices among educators at great institutions has carried with potent results into the subsidiary schools, and even where the State controls, the humanities are more and more neglected for more practical subjects of instruction, more easily acquired. Again is the short cut in evidence, with the necessitated curtailment in adequate training.

It is almost impossible for the modern student of scientific medicine even to understand the terms

employed in the subjects he engages without a proper foundation in Latin or Greek. As for contemporaneous endeavor, most of this finds its expression through the clearing house of the German medical press. Our State educators should hearken to the sound of distressed science in making the so called dead languages elective and these should find their place as of old in the required curriculum of a high school and a college course. The incentive to medical education, at least, is greater when the foundation is laid in the languages through which the birth of medical science has been recorded.

A medical college can never be an entire success without two essential attributes: First, its integrity merged with an established university, in which the arts and sciences are properly expounded, and from which emanates the spirit of philosophy and of research, both of which engender a reasonable leavening of its medical school with their tenets; second, a well organized hospital in which a sufficient number of sick and wounded are cared for to permit a proper instruction in the principles of medicine and surgery.

We have placed the university first, because the basis of both the study and the practice of medicine must be laid on the foundation of learning and the precept of practice attained at a hospital alone cannot be substituted. More than this, the other side of the future physician must be based upon his knowledge of the amenities of life—more naturally found in centres of general education than in sectarian segregation. It is not only possible, but it is desirable that all universities should provide the students in the State with the opportunities for the laboratory teaching of the elementary divisions of medicine embraced in the chairs of chemistry, physics and biology, including the branches of anatomy and physiology, comparative and human.

The teaching of the applied science of medicine, as embraced in the clinical fields, cannot and should not be undertaken without proper hospital provision. The outcry against many medical schools in this country has arisen from the very fact that medical colleges pretended to train doctors of medicine and have graduated classes of students with a diploma when their hospital training has been undertaken with institutions called hospitals with provision for not more than fifty to one hundred sick persons.

The day has passed when there is any necessity for this; and, in conscience, the medical school without adequate hospital facilities may satisfy the medical course by giving a bachelor's degree in medicine, as a recognition for the work actually accomplished by the student and as an honest credential from the institution. The additional degree of doctor of medicine will be gladly bestowed in due course in those cities with no greater spirit of education, but with larger clinical opportunities and facilities.

Any university contemplating a medical course in its entirety should so impress the authorities of the State that adequate hospital provision is made—if a complete course of medicine is to be given. We are not yet satisfied that the last word has been uttered in the arrangement of a medical course, and

no school anywhere has established the course which is ideal. At present there are two classes of medical colleges—one training the scientific physician, the other training the doctor of medicine, and it has been difficult to marry the two. The time allowed for a medical degree is too short to make the trained doctor a thorough scientist as well, and our conception of medical education must change before the purpose of a medical training is fully realized.

Fully equipped laboratories with proper teachers cost a great deal of money, and as yet endowment has been inadequate in most schools to meet the need of such equipment. A medical training should begin in the high school, should continue for at least a year in a college, and a model curriculum should take at least five years to satisfy an ordinary scientific and practical education. The first two years should be spent in the laboratories of the natural sciences and the last three in the laboratories of the applied sciences as related to medicine, and at no time should the student fail to keep both the laboratory and clinic before him as of equal value. The fifth year should be mostly clinical, with concentration for set periods in the different branches of medicine. The physician of the future should be trained in all branches of medicine and surgery. Nowadays, there are too many specialists who are untrained doctors, and their superfluity is the chiefest argument for their relegation to the ranks.

The physician of the future should be above all an educated man, a credit to the State, and an honor to his own conscience, and this can come only by the appreciation on the part of the public of the need of a proper State support and control of medical education under the auspices of the institution of learning which is the centre of advanced thought in the State.

The University of Oklahoma has been a great object lesson to those of us who have looked at her advancement, and it is a thing to marvel at that in so short a space of years a great commonwealth should have arisen with that degree of wisdom in its newly established people to make model laws and establish model schools. The university stands as the centre of civic and State honesty and purpose, and around it must grow the finest traditions of the people, for here as a foster mother she spends her sustenance in building for the future of the citizenship of the State!

It is a privilege for the Tulane University of Louisiana, through an humble representative, to present on this occasion the felicitations of her faculty and its president, to a sister institution, beginning a new century under the brightest of auspices.

In offering the message of Tulane to the University of Oklahoma, it is with added pleasure that the occasion affords me the opportunity to tender the heartiest of good wishes and the most earnest hopes for a successful administration to the new president.

124 BARONNE STREET.

TYPHOID FEVER; ITS MILK FREE TREATMENT.

A Study of Sixty-five Cases at Germantown Hospital.

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No advantage is to be gained by merely reporting a greater or less number of cases of any illness unless some lesson is to be learned or some new departure, however, slight, from previous treatment tried, which in order to commend itself to medical attention must have as many tried experiences as possible.

It is very useful to report all cases of a new disease occurring in a locality, especially of a contagious or infectious nature, in order that proper study of it may be made and precautions taken for limiting its spread.

In case of typhoid fever, much, but not all by any means, is already known: its method of transmission and spread; its character and complications; its prophylaxis; and, lastly, its treatment—both medicinal and dietetic. For many, many years the general trend, and we might justly add the only trend of dietetic treatment, was for liquid nourishment, which amounted in the majority of cases to milk alone. This was adhered to on the plea that it was the most concentrated nourishment that could be given; that the casein coagula, formed when the stomach was reached, were not sufficiently hard and bulky to irritate the ulcers of the ileum, and that it was better borne by the majority of patients than anything else. If the patients insisted that they could not take it, or that it always disagreed with them, that objection was overruled, on the ground of its being a neurotic idiosyncrasy, and that a very small amount of will power and determination on the part of the patients was all that was necessary to overcome their repugnance; or, in certain cases, their positive nausea and rejection of the food.

This series of cases was the result of direct contamination of the water supply of Germantown (Twenty-second ward of Philadelphia, and two or three other northwestern wards), caused by a break, on November 20, 1911, of the main pipe at Roxborough from the filter beds, which allowed the Schuylkill river to discharge its sewage directly into the supply pipes. The cases were of more than average severity, as will be seen from the following tables, the first one showing the high points of temperature and the average high point; and the second showing the duration of each case and the average.

TABLE I. TEMPERATURE.

Case No. 1, 105.4° F.	Case No. 11, 104.3°	Case No. 21, 103°
Case No. 2, 105.2°	Case No. 12, 105.4°	Case No. 22, 103.4°
Case No. 3, 105°	Case No. 13, 104.4°	Case No. 23, 103° F.
Case No. 4, 104°	Case No. 14, 105.2°	Case No. 24, 103°
Case No. 5, 104.2°	Case No. 15, 105°	Case No. 25, 104.4°
Case No. 6, 104.3°	Case No. 16, 105.2°	Case No. 26, 103.1°
Case No. 7, 103.2°	Case No. 17, 104.4°	Case No. 27, 105.3°
Case No. 8, 105.2°	Case No. 18, 103.1°	Case No. 28, 105°
Case No. 9, 101.3°	Case No. 19, 103.1°	Case No. 29, 104°
Case No. 10, 103.2°	Case No. 20, 104°	Case No. 30, 105.2°

Case No. 31, 103.1°	Case No. 43, 103.1°	Case No. 55, 105.1°
Case No. 32, 104.2°	Case No. 44, 104.1°	Case No. 56, 103.4°
Case No. 33, 104.2°	Case No. 45, 104.4° F.	Case No. 57, 104.3°
Case No. 34, 103°	Case No. 46, 104.3°	Case No. 58, 104.3°
Case No. 35, 104.2°	Case No. 47, 103°	Case No. 59, 101.2°
Case No. 36, 106°	Case No. 48, 103°	Case No. 60, 105.2°
Case No. 37, 103°	Case No. 49, 102°	Case No. 61, 104°
Case No. 38, 104.2°	Case No. 50, 105°	Case No. 62, 103°
Case No. 39, 105°	Case No. 51, 105.3°	Case No. 63, 106°
Case No. 40, 102.4°	Case No. 52, 104.2°	Case No. 64, 105°
Case No. 41, 104.3°	Case No. 53, 104.2°	Case No. 65, 104°
Case No. 42, 104.4°	Case No. 54, 104.2°	

The average being a little over 104° F. for high point.

TABLE II. DURATION.

Case No. 1, 23 days	Case No. 23, 26 days	Case No. 45, 25 days
Case No. 2, 27 days	Case No. 24, 42 days	Case No. 46, 29 days
Case No. 3, 29 days	Case No. 25, 15 days	Case No. 47, 32 days
Case No. 4, 20 days	Case No. 26, 14 days	Case No. 48, 25 days
Case No. 5, 44 days	Case No. 27, 109 days	Case No. 49, 16 days
Case No. 6, 64 days	Case No. 28, 29 days	Case No. 50, 21 days
Case No. 7, 17 days	Case No. 29, 20 days	Case No. 51, 28 days
Case No. 8, 58 days	Case No. 30, 15 days	Case No. 52, 20 days
Case No. 9, 20 days	Case No. 31, 11 days	Case No. 53, 30 days
Case No. 10, 48 days	Case No. 32, 32 days	Case No. 54, 30 days
Case No. 11, 33 days	Case No. 33, 28 days	Case No. 55, 42 days
Case No. 12, 40 days	Case No. 34, 16 days	Case No. 56, 22 days
Case No. 13, 50 days	Case No. 35, 24 days	Case No. 57, 24 days
Case No. 14, 44 days	Case No. 36, 17 days	Case No. 58, 19 days
Case No. 15, 43 days	Case No. 37, 26 days	Case No. 59, 26 days
Case No. 16, 51 days	Case No. 38, 20 days	Case No. 60, 21 days
Case No. 17, 15 days	Case No. 39, 28 days	Case No. 61, 22 days
Case No. 18, 23 days	Case No. 40, 15 days	Case No. 62, 28 days
Case No. 19, 22 days	Case No. 41, 36 days	Case No. 63, 29 days
Case No. 20, 15 days	Case No. 42, 31 days	Case No. 64, 37 days
Case No. 21, 27 days	Case No. 43, 21 days	Case No. 65, 27 days
Case No. 22, 20 days	Case No. 44, 20 days	

Average 28, 61/65 days.

TABLE III. DATES AND NUMBER OF ADMISSIONS.

The dates of admission and number of admissions on each day were as follows: On December 7, 1911, Case No. 1 was admitted on the twelfth day of the disease. This was the only case not traceable to the break in the water main.

On December 13, 1911, 1 case admitted, with history of date of onset December 13.

On December 15, 1911, 1 case admitted, with history of date of onset December 8.

On December 18, 1911, 2 cases admitted.

On December 20, 1911, 1 case admitted.

On December 21, 1911, 2 cases admitted.

On December 22, 1911, 1 case admitted.

On December 23, 1911, 4 cases admitted.

On December 24, 1911, 3 cases admitted.

On December 25, 1911, 2 cases admitted.

On December 26, 1911, 2 cases admitted.

On December 27, 1911, 5 cases admitted.

On December 28, 1911, 5 cases admitted.

On December 29, 1911, 6 cases admitted.

On December 30, 1911, 6 cases admitted.

On December 31, 1911, 3 cases admitted.

On January 1, 1912, 3 cases admitted.

On January 2, 1912, 6 cases admitted.

On January 3, 1912, 3 cases admitted.

On January 4, 1912, 1 case admitted.

On January 6, 1912, 1 case admitted.

On January 11, 1912, 1 case admitted.

On January 15, 1912, 2 cases admitted.

On January 18, 1912, 1 case admitted.

On January 25, 1912, 1 case admitted.

On January 31, 1912, 1 case admitted.

Duration of 65 cases, 1,881 days, an average of 28 61/65 days.

TABLE IV. COMPLICATIONS AND MARKED SYMPTOMS.

Relapses, 5, two in one case, thus making relapses in four patients only.

Diarrhea, 23 cases on admission; four persisting throughout, the remaining 19 subsiding on treatment.

Distention, 10 cases, marked only in three.

Hemorrhages, 4 cases, a low percentage.

Perforation, none.

Otitis, 8 cases.

Parotiditis, 2 cases.

Hematuria, 2 cases.

Nephritis, 10 cases.

Purpura, 1 case.

Abscesses, superficial, 6 cases.

Termination of fever: Lysis in 62 cases; crisis in 3 cases.

TABLE V. BLOOD EXAMINATION.

Average systolic blood pressure.....	99
Lowest systolic blood pressure.....	78
Highest systolic blood pressure.....	130
Average diastolic blood pressure.....	65
Lowest diastolic blood pressure.....	30
Highest diastolic blood pressure.....	82

Average leucocyte count.....	5,039
Lowest leucocyte count.....	2,200
Highest leucocyte count.....	48,200

TABLE VI. SYMPTOMS ON ADMISSION AND THROUGHOUT.

Headache.....	32	Delirium.....	9
Abdominal pain.....	19	Cough, bronchitis.....	19
Epistaxis.....	13	Chills.....	11
Anorexia.....	10	Rose spots.....	30

Constipation.....	15	Palpable spleen.....	15
Vertigo.....	6	Splenic resistance.....	13
Vomiting.....	13	Sudamina.....	2
Nausea.....	3		

TABLE VII. WIDAL REACTION.

Positive, board of health.....	57
Positive, hospital.....	60
Suggestion, board of health.....	0
Suggestion, hospital.....	2
Negative, board of health.....	8
Negative, hospital.....	3

The dietetic treatment, on which the greatest reliance was placed for the results obtained, and which in our opinion was responsible for the very low percentage of diarrhea, distention, hemorrhages, and no perforations, consisted of broths, soups, gruels, gelatin, eggs, sugar of milk, and butter. Milk was absolutely eliminated, except in the convalescent stage. Great reliance was placed on gelatin, which was given almost *ad libitum*. According to Kemp, the ingestion of 7.5 per cent. of the total heat requirement of the organism in the form of gelatin spares twenty-three per cent. of the body's proteid. There is a total of 2,800 calories required by a man of 154 pounds weight (Chittenden); 210 calories in gelatin are necessary (one gramme of gelatin contains 4.1 calories), so about fifty grammes of gelatin, or about 1.5 ounce, are necessary. This amount in one quart of water gives a five per cent. solution, and can be flavored with lemon, vanilla, orange, or sherry and sweetened with sugar of milk, and be given in divided doses during the day—between other feedings. Gelatin lessens the tendency to hemorrhage, in our opinion, and was largely accountable for the freedom in these cases from this serious complication.

If venous thrombosis occurs, gelatin should be stopped. The gruels (barley, rice, and oatmeal) may be made of different consistence. It is well to begin with a thin gruel (strained) and note the effect, and gradually thicken it if well borne.

For barley gruel, thin, use one tablespoonful of Robinson's barley flour to one pint of water; boil three quarters of an hour; for thick gruel use two tablespoonfuls of the flour. For rice and oatmeal gruel, use the same proportions as for the barley. Strain all. For adults, add to the gruels the yolks of four eggs, which contain considerable fat, and four drachms of sugar of milk. For children use two yolks of eggs and half the quantity of sugar of milk. A pat of butter may be added to the gruel.

TABLE VIII—ENTERIC DIET, GIVING THE AMOUNT AND TIMES OF FEEDING.

6 a. m.	Barley gruel, sugar of milk one drachm, and yolk of one egg, total of 10 ounces.
8 a. m.	Gelatin, 6 ounces.
9 a. m.	Lamb broth, 10 ounces.
11 a. m.	Gelatin, 6 ounces.
12 m.	Rice gruel, sugar of milk one drachm, and yolk of one egg, total of 10 ounces.
2 p. m.	Gelatin, 6 ounces.
3 p. m.	Barley gruel, sugar of milk one drachm, yolk of one egg, total of 10 ounces.
5 p. m.	Gelatin, 6 ounces.
6 p. m.	Rice gruel, sugar of milk one drachm, and yolk of one egg, total of 10 ounces.
8 p. m.	Gelatin, 6 ounces.
9 p. m.	Pea soup, 10 ounces.

During convalescence the same dietetic treatment was observed, except thickening of the gruels until the tenth day; then two soft boiled eggs were allowed, and if no rise in temperature occurred, milk toast was allowed the next day in addition to

the eggs. Gradually soft diet was allowed, and at the end of the week, if no relapse occurred and convalescence was maintained, the patients were well on their way to full house diet, meat and vegetables.

In conclusion, about the diet, no feedings were allowed at night, with a very few exceptions among the very sick, when little could be taken at a time. In this way much needed rest was obtained by the patients. They were all roused during the day from 6 a. m. until 9 p. m., if dozing. The spirit was inculcated that they were all cooperating in their own cure. All the water (cold, but not iced) was given which they wanted. After each feeding five to ten drops of dilute hydrochloric acid were given in the water.

Medicinal treatment, outside of routine treatment which will be described later, was employed symptomatically. For hemorrhage, no food was allowed except gelatin; opium and lead internally and ice to the abdomen. For distention, same diet and oil of turpentine in doses of two to five drops in emulsion; passing of rectal tube and enteroclysis with salt solution, allowing two hours for one quart and one hour for one pint and given three or four times a day. For nephritis, abundance of water and potassium citrate. For diarrhea, gelatin alone or with gruels made very thin; bismuth, opium, and lead. Constipation required enemas, simple or high compound, consisting of magnesium sulphate, one ounce; glycerin, two ounces; turpentine, two drachms, and water, one pint, and irrigation of bowels.

The routine treatment consisted of cold spongings, lasting from fifteen to thirty minutes, and given every three hours if temperature was 102.5° F. or over, by axilla, which meant about one degree more by rectum. We usually began sponging new patients with the temperature of water at 85°, gradually reducing it as the patients became accustomed to it to 75° and 65° and lower, even to ice water if it was well borne and caused no chill. In children, the temperature of the water was on an average about ten degrees higher than for adults, and no ice water.

Hexamethylenamine was given in doses of five grains four times daily, and children two to three grains at same intervals, and we think, exerted a marked influence in reducing the toxemia; but as another chemical compound also seems to act similarly, the honors may be, perhaps, divided between them. Whether they act by eliminating bacilli in the excretions, principally the urine, or by rendering the fluids of the body an unsafe culture medium for the growth of the bacilli or by stimulating the opsonins or by doing all, seems a moot question. We will not enter into a scientific discussion of the question, as that would be beyond the limits of this article. The other drug used, as a febrifuge and antitoxic, was acetylsalicylphenetidin. It was given in doses of five grains, every two hours, to adults, and two to three grains at same intervals to children; and did not in a single case cause the slightest depression.

The four deaths, in this series of cases, we consider were inevitable from the start; that is, from the date of admission. All the doomed patients

were highly toxemic, and had been cared for at home for a greater or less length of time in a very poor and haphazard manner. Two were postpuerperal patients, and in one the stage of invasion began a very few days after termination of labor, and, added to this, was the grief caused by the death of her baby. In the third fatal case a septic thrombosis occurred in the left median basilic vein and right popliteal, causing moist gangrene of both extremities. The fourth, and last case, occurred in a colored boy, aged five years, of tuberculous history, in whom basilar meningitis developed, whether of a typhoid, tuberculous, or mixed infection was not determined. A short history of the cases follows, the individual charts not being given on account of adding too much to the length of the article.

CASE I. Boy, twelve years old. White. Admitted December 24, 1911, on eighth day of disease. Died January 8, 1912, on twenty-third day. Temperature December 24th, high point 105.8°, low point 101°. Delirium, moderate degree, talkative. Enlarged gallbladder. Heart, second sound accentuated. Abdomen tense, no spots. Spleen not palpable. January 3d temperature up to 105.8°, when chills occurred and marked swelling of left forearm, great tenderness. Erythema marked, also same on right tibia. January 4th, hemorrhage, amount not noted. January 6th, left arm and right leg marked by increase in size and dark color, deepening to a purplish black, and later, to moist gangrene due to septic thrombosis of left basilic vein and right popliteal vein. Blood pressure January 6th, systolic 93, diastolic 70, Widal, January 5th suggestive. Leucocyte count 9,400. No diarrhea, relapse, or distention.

CASE II. Boy, aged four years. Colored. Tuberculous history. Admitted December 23d, on seventh day of disease. Temperature ranged from 102° to 105°. January 1st began to break and on January 7th, 100.6°, irregular in type; January 12th 105.4°. Died January 12th on twenty-seventh day. January 3d, shrill cry and rigidity of neck suggesting basilar meningitis. No opisthotonos, but marked curling of body. Extreme flexion. Legs spastic. Suggestive Kernig. January 4th, purpuric spots occurred on trunk and legs, breaking down into abscesses. Blood pressure, January 7th, systolic 78, diastolic 30. January 9th, double otitis, very foul discharge. Widal, December 31st, positive. Blood, white cells 8,880. No diarrhea, relapse, or distention.

CASE III. White woman, aged twenty-five years. Had buried a child twenty-two days old on date of admission, which was January 2, 1912, and the fifth day of the disease. Temperature 105° to 103°. On fifteenth day of disease, January 12th, dropped to normal and back to 103°. Irregular until twenty-seventh day, January 24th, and stayed that way until death on January 26th, on the 29th day of the disease. Symptoms: Headache, drowsiness, malaise. Abdomen slightly distended. January 3d, sordes of mouth. January 4th, spleen palpable. January 6th, spots. Blood pressure, systolic 78, diastolic 70. January 12th, Widal, positive. White blood cells 6,500. January 18th board of health Widal, positive. Urine negative. The first week temperature ranged from 105° to 103°. Sponge baths had very little effect on temperature. Marked diarrhea from twelfth day of disease until twentieth day, ranging from four to seven stools a day, controlled after that. Treatment in addition to routine consisted of enteroclysis, one pint. B. D., taking an hour to deliver, later continuous enteroclysis. No delirium; some distention.

CASE IV. White woman, aged twenty-six years. Postpuerperal. Admitted December 21st on seventh day of disease. Temperature 104°; pulse 128, respiration 32. Extremely toxic condition and appearance. Constant tremors. Lysis took place until December 29th. Temperature remained normal until December 31st, when after a chill, at 8 p. m., it reached 103.5°; pulse 150, respiration 28. Temperature again reached normal January 1st, but on January 2d was 104.4°. Death occurred January 3d, 12 p. m., on twentieth day. On admission, white blood cells 3,600. Widal positive. December 30th,

marked hematuria, which entirely disappeared before death. Diarrhea not marked. Rose spots present. Spleen not palpable. Heart and lungs negative. Breasts enlarged. No diarrhea or distention. Delirium marked.

CASE V. White man, aged twenty-seven years. Admitted December 29th, discharged March 11th. Admitted on seventh day of disease with temperature of 104.4° ; pulse 118; respiration 24; heart and lungs normal. From January 10th the temperature was irregular, normal, and up to 102° until February 3d, on the forty-fourth day, then normal until final convalescence, with one exceptional rise of February 12th to 100.4° . Case was marked by hemorrhages, intestinal distention, and diarrhea. On December 31st three hemorrhages, one of eight ounces; January 1st, two hemorrhages; January 4th, five hemorrhages, three dark brown; January 6th, one hemorrhage, clots; January 12th, one hemorrhage; January 20th, one hemorrhage, twenty-seven ounces with few clots. Spleen not palpable. Widal positive. Kidneys normal. Blood pressure, January 5th, systolic 100, diastolic 78, white blood cells 6,200. No delirium. Diarrhea until January 22d on thirty-first day. No relapse. Great distention, at times, but not constant.

CASE VI. Boy, aged thirteen years; white. Admitted December 28th on eleventh day of disease. Discharged March 16th. Temperature on admission 103° ; pulse 100; respiration 28. Highest point 104.6° . Lysis began January 7th, normal January 10th. Irregular until February 19th, on sixty-fourth day. Spots; tympany; spleen not palpable. Heart, January 12th, systolic 85, diastolic 60. January 17th, otitis. Widal positive. No diarrhea or delirium. Urine, casts present, hyaline, on December 31st, no albumin. No relapse or distention.

CASE VII. White boy, aged thirteen years. Admitted December 26th, on second day of disease. Discharged March 16th. Temperature 103.4° ; pulse 96; respiration 24. Highest point 103.4° . Became normal December 28th for three days, then to 101° and irregular in type until January 10th, on seventeenth day, when final convalescence was established, with exceptions of February 6th, 11th, 12th, and 13th, when evening temperature of 100° was recorded. No spots or gurgling. Symptoms: Diarrhea (before admission, none after); nose bleed; tenderness over spleen; not palpable. Pressure, January 12th, systolic 100, diastolic 55. Widal positive. No delirium. Urine negative. No diarrhea, no relapse, no distention.

CASE VIII. White male, aged twenty years. Admitted December 28th, on seventh day of disease. Discharged March 16th. Temperature 106° ; pulse 100; respiration 42, for seven days. Lowest point 102.4° ; highest point 105.4° . Sponge baths every hour and two hours failed to lower more than one degree. January 4th, 100° , then until January 13th, when normal was reached, it was very irregular, 104.4° the highest point. After January 13th there was a long irregular course, temperature reaching at times 103.4° , January 24th and 104° on February 2d, and final convalescence not until February 17th, on fifty-eighth day. Heart and lungs normal. January 2d, gurgling, no spots. Spleen not palpable. January 3d, spots. January 7th, passed three small clots, no distention. January 8th, four hemorrhages. Pressure, January 13th, systolic 103, diastolic 20. January 14th, parotiditis, right side, enormous suppuration. Widal positive. January 26th, otitis. No diarrhea or distention. Delirium. Urine, albumin and casts until January 24th. No relapse.

CASE IX. White boy, aged five years. Admitted January 6, 1912, on fifteenth day of the disease. Discharged March 11th. Symptoms: Temperature 101.6° , pulse 120; respiration 24. Tympany. Spleen not palpable. Spots, abdomen and thorax. Herpes. Heart normal. Slight area in upper chest of bronchopneumonia. Blood pressure, systolic 88, diastolic 62. Widal positive. Abscess right leg. Leucocyte, January 12th, 11,200. Urine negative. No diarrhea. Lysis on twentieth day. No distention or relapse.

CASE X. White woman, aged twenty-one years. Admitted December 23, 1911, on ninth day of disease. Discharged March 6th. Symptoms: Temperature 102.4° ; pulse 112; respiration 26. Highest temperature 103.4° December 26th. Lysis January 16th, thirty-third day. Normal from January 6th until February 4th, on fifty-second day. Relapse: Temperature 104° , February 9th, normal February 17th, sixty-fifth day, until final convalescence.

Course of fever, counting relapse, forty-eight days. Spots on abdomen. Spleen not palpable. Epistaxis, January 1st, for three days. Systolic 100, diastolic 65. Widal positive. Heart and lungs normal. Leucocyte count, December 27th, 12,800. Urine, December 24th, albumin trace and hyaline casts—cleared up. Original course of fever December 14th (date of onset) until January 16th, thirty-four days. Add for relapse fourteen days, making a total of forty-eight days. No diarrhea. No distention or delirium.

CASE XI. White man, aged thirty-six years. Admitted December 31, 1911, on fourth day of disease. Discharged March 8th. Symptoms: Temperature 103° ; pulse 108; respiration 28. Highest temperature 104.6° on January 3d, normal January 28th. Spleen very large. No spots or gurgling. Liver enlarged downward. No epistaxis or spots. Widal negative by board of health on January 9th. Heart, systolic 98, diastolic 78, January 13th. January 3d, lungs full of coarse râles. January 9th, gallbladder palpable. January 25th, Widal positive by board of health. Blood pressure, systolic 82, diastolic 60, January 26th. January 5th, leucocyte, 4,820. Urine, January 1st, slight trace of albumin and few granular casts—cleared up. Lysis, January 29th, thirty-third day. No diarrhea, relapse, distention, or delirium.

CASE XII. White girl, aged ten years. Admitted December 21, 1911, on eighth day of disease. Discharged March 6th. Temperature 104.4° ; pulse 128; respiration 28. Highest point 105.8° . Normal December 29th. Rose again, after December 29th, to 101.4° , ran along in moderate fever from 98° to 101° until January 13th, then to 103° ; moderate again to January 19th, then up to 103° ; then normal until final convalescence, lysis occurring January 21st, fortieth day, with exceptions of 101.4° February 8th, and 103° March 1st. On admission heart and lungs were normal. No tympany. Spleen palpable. Gurgling. No spots seen. December 24th marked tympany for six days. Marked delirium until December 31st. Pressure, January 6th, systolic 114, diastolic 80. January 11th abscess opened in buttocks. Widal positive. January 18th, turpentine used, two drops internally every second hour, and externally. Rectal tube passed. Urine normal. No diarrhea or relapse.

CASE XIII. White girl, aged sixteen years. Admitted December 30, 1911, on eighth day of disease. Discharged March 8th. Temperature 104.8° ; pulse 108; respiration 28. Highest point 104.8° . Lysis began January 8th. Normal on January 11th, then irregular until January 25th, when a recrudescence occurred, temperature reaching 103° , and finally normal on February 9th, on fiftieth day, and continuing until final convalescence. Spots on January 2d. Spleen not palpable. Slight tympany. Pressure, January 9th, systolic 92, diastolic 80, January 11th otitis media developed. January 18th, Widal positive. January 2d, leucocyte 6,700. Urine, albumin and granular casts, January 27th, cleared by February 7th. No diarrhea or distention.

CASE XIV. White man, aged twenty-four years. Admitted December 29, 1911, on eighth day of disease. Discharged March 16th. Temperature 105.4° ; pulse 124; respiration 24. Highest point 105.4° , and very high course for four weeks, reaching 105° four times, until January 26th, normal—then irregular, 102.6° and 102° twice until final convalescence, February 2d, forty-fourth day. Hemorrhages, January 5th, two; January 18th, one. Otitis January 24th. January 2d, lungs and heart clear, no spots. Spleen not palpable, no distention. January 3d, spots. Pressure, January 5th, systolic 140, diastolic 98. January 6th, systolic 98, diastolic 72. January 13th, systolic 85, diastolic 70. Widal positive. Urine, albumin and casts December 29th to January 11th. No diarrhea. Marked delirium, low and muttering. No relapse or distention.

CASE XV. Man, white, aged twenty-two years. Admitted December 29, 1911, on sixth day of disease. Discharged March 16, 1912. Temperature 104.8° ; pulse 98; respiration 24. Very high course. Sponging every hour and two hours hardly affected the temperature. Between 103° and 105° until January 4th, when it began to break and spongings were discontinued on January 5th, to be resumed January 11th. January 12th a most erratic movement in temperature occurred, which continued for two days, then one day's intermission and to normal and on next day high. January 12th, 8 p. m., 105° ; January 13th, 5 a. m., 100° ; January 13th, 8 p. m., 105° ; January 14th, 8 a. m., 99° ; January 14th, 8 p. m., 99° ; January

15th, 5 a. m., 100°; January 15th, 8 p. m., 105°; then a high evening course of 103° until January 27th, when lysis began and continued until final convalescence on February 4th, forty-third day. Heart and lungs normal. Rose spots. Marked delirium. January 12th, pustules over back and extensive sloughing of skin. Pressure, systolic 130, diastolic 70. Widal positive. January 18th, marked contracture of fingers of both hands, continued for three days. January 22d, otitis; profuse diarrhea. The urine showed albumin and casts from December 31st to January 24th. No relapse, no distention.

CASE XVI. White man, aged twenty-two years. Admitted January 3, 1912, on fifth day of disease. Discharged March 16th. Temperature 105.4°; pulse 120; respiration 24. High course until January 9th, when lysis began, until January 17th, when normal was reached. On January 19th a recrudescence occurred for eight days. Lysis again on January 28th, reaching normal on February 3d, then irregular, reaching 100° in evenings, until final convalescence on February 18th, fifty-first day. Symptoms: Headache; no epistaxis; slight tympany; spleen palpable; no spots; gurgling; heart and lungs normal; no diarrhea or delirium. Pressure, January 13th, systolic 94, diastolic 60. January 19th, otitis. Widal positive. Urine casts and albumin from January 23d until February 1st, but mild. No diarrhea, relapse or distention.

CASE XVII. White woman, aged twenty-three years. Admitted December 18, 1911, on fifth day of disease. Discharged January 20th. Temperature 104.8°; pulse 108; respiration 32. Lysis. Normal fifteenth day. Symptoms: Malaise, coughing, abdominal tenderness. December 18th, white blood cells 8,560. Widal positive. January 18th, board of health Widal positive. Pressure, systolic 118, diastolic 78 on January 6th. Urine, albumin and granular casts. Spleen not palpable. No diarrhea, relapse, or distention.

CASE XVIII. White boy, aged twenty years. Admitted December 30, 1911, on nineteenth day of disease. Discharged February 22d. Temperature 101.2°; pulse 80; respiration 24. High point 103.2°. Lysis until January 3d, twenty-third day. Symptoms: Headache, vertigo, abdominal pain, constipation, vomiting, abdomen slightly tense. Spleen not palpable. January 5th white blood cells 6,200; Widal positive. January 9th, Widal negative by board of health. Pressure, January 13th, systolic 98, diastolic 50. January 25th, Widal positive by board of health. Urine negative. No diarrhea, relapse, or distention.

CASE XIX. White man, aged thirty-five years. Admitted December 28, 1911, on tenth day of disease. Discharged February 22d. Temperature 100°; pulse 100; respiration 24. High point 103.2°. Lysis. Normal on January 9th, twenty-second day. Symptoms: Malaise, headache, cough, very slight tympany of abdomen, splenic resistance, spots. January 5th, Widal positive, white blood cells 7,400. January 9th, Widal positive by board of health. Pressure, January 13th, systolic 102, diastolic 82. Urine negative. No diarrhea, relapse, or marked distention.

CASE XX. White boy, aged eighteen years. Admitted December 30, 1911, on sixth day of disease. Discharged February 21st. Temperature 101.4°; pulse 100; respiration 24. High point 104°. Lysis. Normal January 8th on fifteenth day. Symptoms: Chill, headache, cough, constipation. January 3d, spots, splenic resistance—not palpable. January 5th, white blood cells 5,300. Widal positive. January 9th, Widal positive by board of health. Blood pressure, January 13th, systolic 100, diastolic 68. Urine, albumin and granular casts. Disappeared. No relapse, diarrhea, or distention.

CASE XXI. Colored man, aged twenty-three years. Admitted December 30, 1911, on fourteenth day of disease. Discharged February 25th. Temperature 99°; pulse 88; respiration 24. High point 103°. Lysis. Normal January 6th, then up to 102° for six days. Normal January 12th, on twenty-seventh day. Symptoms: Spleen palpable. January 5th, white blood cells 7,000. Widal positive. January 9th, Widal positive by board of health. Blood pressure, January 12th, systolic 115, diastolic 70. Urine negative. No relapse, diarrhea, or distention.

CASE XXII. White girl, aged two years. Admitted December 13, 1911, for mastoiditis; operation December 15th, by Doctor Smith. Discharged January 11th. Temperature 102.6° with symptoms of mastoiditis left ear, fever,

tenderness, hyperemia, and swelling over mastoid. December 15th, fever irregular, around 100°, but dropped to normal December 17th for six days. December 23d began to rise and December 24th up to 103°. High point 103.8°. Lysis. Bronchitis. January 5th, rose spots. December 14th, white blood cells 2,400. Widal positive. Discharged before board of health test could be done. Length of fever twenty days. No relapse, diarrhea, or distention.

CASE XXIII. White woman, aged forty years. Admitted January 3, 1912, on eighth day of disease. Discharged February 20th. Temperature 100.8°; pulse 116; respiration 28. High point 103°. Lysis. Normal January 21st, on twenty-sixth day. Symptoms: Headache, pain in back, diarrhea, drowsiness and languor, anorexia. Pressure, January 9th, systolic 98, diastolic 60. January 18th, board of health Widal test positive. Urine had albumin, but it disappeared. Diarrhea until nineteenth day. No relapse or distention.

CASE XXIV. White boy, aged eight years. Admitted January 18, 1912, on twenty-sixth day of disease. Discharged March 4th. Temperature 103°; pulse 120; respiration 36. Lysis. Normal on forty-second day. Symptoms: Headache, malaise, anorexia, abdominal tympany, rose spots, liver enlarged to fifth rib axilla line, gurgling, spleen not palpable. Pressure, January 18th, systolic 92, diastolic 51. White blood cells 10,400. Widal positive; board of health positive. No relapse, diarrhea, or distention after admission.

CASE XXV. White girl, aged seven years. Admitted December 25, 1911, on sixth day of disease. Discharged February 21st. Temperature 103°; pulse 140; respiration 26. High point 104.8°. Lysis January 3d, on fifteenth day. February 7th, 103.4°, dropped again on February 10th and remained normal, fever lasting but four days—hardly a relapse. Symptoms: Headache, epistaxis, cough, diarrhea, slight pain. Pressure, January 6th, systolic 98, diastolic 70. January 13th, boil on back of head. January 18th, board of health Widal test positive. February 1st, white blood cells 4,100. No diarrhea or distention.

CASE XXVI. White boy, aged eighteen years. Admitted December 29, 1911, on fifth day of disease. Discharged February 25th. Temperature 102.4°; pulse 88; respiration 24. High point 103.2°. Lysis. Convalescence began January 7th, on fourteenth day. Symptoms: Cough, diarrhea, rose spots. January 3d, spleen palpable. Pressure, January 13th, systolic 90, diastolic 70. January 5th, white blood cells 9,400; Widal positive. January 9th, Widal test positive by board of health. Urine, albumin and granular casts, cleared up. No relapse, distention, or diarrhea.

CASE XXVII. White girl, aged ten years. Admitted January 25, 1912, on fifteenth day of disease. Discharged May 15th. Temperature 104°; pulse 132; respiration 36. High point 105.6°. First week temperature ranged along 104°. Sponging had very little effect. Second week around 103°, sponging still had little effect. Third week around 102°. Fourth week 103° to 105°, very irregular. Fifth week 104° to 103°. Sixth week very irregular, 103° to 99°. Lysis. Touched normal seventh week, but ran up to 104.6° the same week. Eighth week, March 10th, up to 103°. Ninth week still irregular, touching 103.8° and at times 99.4°. From the forty-ninth to the sixty-third day almost normal, at times reaching 100°. On the sixty-third day a relapse occurred, temperature reaching 103.8° and not normal again until the seventy-fourth day, then irregular until the eighty-first day; then normal until the 100th day; then irregular, reaching 101.8°, and normal on April 24th the 100th day and normal ever since. On the 100th day, April 19th, 50 million dead typhoid bacteria were given. April 22nd, 100 million typhoid bacteria. Symptoms: Vomiting, cough, diarrhea at times, epistaxis, headache, abdominal pain, spleen palpable. Pressure, January 26th, systolic 92, diastolic 70. January 28th, spots. February 1st, board of health Widal test positive. January 26th, white blood cells 3,720. March 11th, 6,000. March 16th, urine streaked with blood. Urine at times showed albumin, but no casts. March 20th, abdomen distended, two relapses.

CASE XXVIII. White boy, aged fifteen years. Admitted January 1, 1912, on eighth day of disease. Discharged February 25th. Temperature 104.4°; pulse 88; respiration 28. High point 105°. Lysis. Convalescent January 22d, on twenty-ninth day. Symptoms: Abdominal pain, headache, epistaxis slight, anorexia, constipation, rose spots,

splenic tenderness, iliac gurgling. January 9th, Widal positive; white blood cells 4,970; board of health Widal positive on January 13th. Blood pressure, systolic 92, diastolic 62. Urine negative. No relapse, diarrhea, or distention.

CASE XXIX. White boy, aged nineteen years. Admitted January 1, 1912, on sixth day of disease. Discharged February 17th. Temperature 104°; pulse 94; respiration 24. High point 104°. Irregular temperature until January 15th, the twentieth day; then dropped, 102.4° to 97°. Symptoms: Headache, vertigo, nausea and vomiting, splenic resistance, rose spots, constipation. Pressure, January 12th, systolic 103, diastolic 58. January 18th, board of health Widal test positive. January 12th, white blood cells 11,600. Urine negative, no relapse or diarrhea, or distention.

CASE XXX. White boy, aged seventeen years. Admitted January 2, 1912, on seventh day of disease. Discharged February 17th. Temperature 105°; pulse 100; respiration 36. High point 105.4°. Lysis, on fifteenth day. Symptoms: Headache, vertigo, constipation, blurred vision, vomiting, epistaxis, rose spots, gurgling. January 5th, spleen palpable. Pressure, January 12th, systolic 100, diastolic 60; Widal test positive; white blood cells 8,120. January 27th, board of health Widal test positive. Urine negative. No diarrhea, relapse, or distention.

CASE XXXI. White boy, aged nine years. Admitted January 2, 1912, on tenth day of disease. Discharged February 5th. Temperature 103.2°; pulse 100; respiration 28. Dropped by crisis next day to 99°, on eleventh day. Symptoms: Headache, abdominal pain, anorexia, constipation, a few spots. January 4th, spleen palpable. Pressure, January 6th, systolic 92, diastolic 60. Hospital Widal test suggestive. White blood cells 5,900. January 18th and 25th, board of health Widal tests negative. Urine negative. No diarrhea, relapse, or distention.

CASE XXXII. Colored girl, aged eighteen years. Admitted January 2, 1912, on tenth day of disease. Discharged February 21st. Temperature 103°; pulse 120; respiration 36. High point 104.4°. Lysis on thirty-second day. Symptoms: Anorexia, malaise, epistaxis, sore throat, cough, abdomen enlarged, firm and hard, fetal heart sounds, right occipital posterior, was pregnant, splenic tenderness. Pressure, January 9th, systolic 98, diastolic 80. January 12th, Widal positive. White blood cells 4,800. January 25th, board of health Widal positive. Urine negative. No diarrhea, relapse, or distention.

CASE XXXIII. White woman, aged twenty-one years. Admitted January 2, 1912, on twelfth day of disease. Discharged February 10th. Temperature 102.6°; pulse 116; respiration 28. High point 104°. Lysis on twenty-eighth day. Symptoms: Malaise, headache, epistaxis, diarrhea. January 4th, rose spots, splenic resistance. Pressure, January 6th, systolic 116, diastolic 60. January 12th, Widal positive. White blood cells 6,700. January 18th, board of health Widal positive. Urine negative. No relapse, diarrhea, or distention.

CASE XXXIV. White woman, aged twenty-eight years. Admitted January 3, 1912, on fourteenth day of disease. Discharged January 26th. Temperature 101°; pulse 116; respiration 28. High point 103°. Crisis on sixteenth day. Symptoms: Headache, abdominal pains, cough, vertigo, anorexia, malaise, mitral systolic. Pressure, January 9th, systolic 98, diastolic 80. January 12th, Widal suggestive. White blood cells 14,100. January 18th and 25th, board of health Widal test negative. Urine on admission showed albumin and granular casts, on discharge, no casts, but albumin present. No diarrhea, relapse, or distention.

CASE XXXV. Colored boy, aged thirteen years. Admitted January 4, 1912, on seventh day of disease. Discharged February 25th. Temperature 104.4°; pulse 96; respiration 24. High point 104.4°. Lysis on twenty-fourth day. Symptoms: Headache, abdominal pains, anorexia, pain in neck, malaise, muttering, delirium, abdomen tense, tympanitic. January 9th, Widal positive. White blood cells 9,420. Pressure, January 13th, systolic 98, diastolic 33. January 5th, urine, albumin and granular casts, cleared up before discharge. January 18th, board of health Widal positive. No diarrhea or relapse. Distention.

CASE XXXVI. Colored boy, aged seven years. Admitted December 26, 1911, on seventh day of disease. Discharged February 21st. Temperature 106°; pulse 140; respiration 32. Lysis on seventeenth day. Symptoms: Headache, malaise, constipation, spleen palpable. Janu-

ary 3d, delirious. January 4th, tympanitis. Pressure, January 6th, systolic 90, diastolic 70. January 8th, white blood cells 3,800. Widal positive. January 18th board of health Widal positive. No diarrhea, relapse, or distention, except for one day.

CASE XXXVII. White woman, aged thirty-two years. Admitted December 31, 1911, on nineteenth day of disease. Discharged February 3d. Temperature 102.6°; pulse 120; respiration 28. High point 103°. Lysis on twenty-sixth day. Symptoms: Malaise, headache, epistaxis, cough, vomiting of pregnancy, constipation. January 2d, spleen palpable. January 3d, rose spots. White blood cells 7,850. Widal positive. Pressure, January 9th, systolic 119, diastolic 78. January 18th, board of health Widal positive. Urine, albumin and granular casts, which cleared up. No diarrhea, relapse, or distention.

CASE XXXVIII. White girl, aged fifteen years. Admitted December 27, 1911, on fifth day of disease. Discharged February 5th. Temperature 102.4°; pulse 128; respiration 32. High point 104.4°. Lysis on twentieth day. Symptoms: Malaise, headache, diarrhea, abdominal pain. January 2d, spots and splenic resistance. December 27th, white blood cells 8,480. Widal positive. January 18th and 25th, board of health Widal negative. Urine negative. Pressure, January 6th, systolic 90, diastolic 60. No relapse, diarrhea, or distention.

CASE XXXIX. White man, aged twenty-four years. Admitted January 2, 1912, on sixth day of disease. Discharged March 8th. Temperature 105°; pulse 100; respiration 28. Lysis and normal on January 17th, on twenty-first day, continuing so until February 3d, slowly rose to 101.6°. Lysis on February 9th to normal. Seven more days of fever, making the duration twenty-eight days. Symptoms: Headache, burning sensation upon urination, drowsiness, constipation, epistaxis, cough, stiff neck, abdomen slightly tympanitic, a few spots. January 3d, abdomen fairly rigid. January 9th, white blood cells 4,650. Widal positive. Blood pressure, January 13th, systolic 105, diastolic 58. January 18th, board of health Widal positive. Urine negative. One relapse, no diarrhea, slight distention.

CASE XL. White girl, aged four years. Admitted January 11, 1912, on eighth day of disease. Discharged March 8th. Temperature 101.6°; pulse 124; respiration 36. High point 102.8°. Lysis on fifteenth day. Symptoms: Cough, vomiting, diarrhea, abdominal pain, malaise, spots. January 12th, white blood cells 9,270. Widal positive. Pressure, January 13th, systolic 78, diastolic 56. January 18th, board of health Widal positive. Urine negative. No relapse. No distention or diarrhea after admission.

CASE XLI. White girl, aged eighteen years. Admitted January 15, 1912, on eleventh day of disease. Discharged March 9th. Temperature 102°; pulse 96; respiration 24. Lysis until January 27th, on twenty-third day, and normal until February 10th, slowly rose irregular to 103°. Lysis to normal on February 23d. Relapse for thirteen days, making length of fever thirty-six days. Symptoms: Headache, anorexia, dizziness, constipation, abdomen slightly tympanitic. Pressure, systolic 114, diastolic 60. January 8th, one spot; board of health Widal positive. White blood cells 6,270. Urine at times showed faint cloud of albumin, but never any casts. No diarrhea, one relapse. Distention slight.

CASE XLII. Colored woman, aged thirty-seven years. Admitted January 31, 1912, on eleventh day of disease. Discharged March 19th. Temperature 102.8°; pulse 100; respiration 44. High point 104.8°. Lysis on February 21st, thirty-first day. Symptoms: Chills, pains in legs and arms, constipation, abdominal pain and tenderness, spleen palpable. White blood cells 4,800. Widal positive. February 1st, urine, albumin, and granular casts. February 8th, albumin but no casts, later albumin disappeared. No diarrhea, relapse, or distention.

CASE XLIII. Colored girl, aged seven years (from House of the Good Shepherd). Admitted December 30, 1911, day of disease unknown. Discharged February 5th. Temperature 102°; pulse 120; respiration 28. High point 103.2°. Lysis on January 5th. Symptoms not noted. January 4th, splenic resistance, no enlargement. Pressure, January 6th, systolic 93, diastolic 72. Widal suggestive. January 18th, board of health Widal positive. No diarrhea, relapse, or distention.

CASE XLIV. White girl, aged twenty years. Admitted

December 27, 1911, on sixth day of disease. Discharged February 5th. Temperature 103°; pulse 96; respiration 24. High point 104.2°. Lysis on January 10th, on twentieth day. Symptoms: Chills, fever, headache, nausea, profuse diarrhea, slight tympany of abdomen, spleen palpable. December 28th, spots. Pressure, January 6th, systolic 100, diastolic 70. January 2d, Widal positive. White blood cells 12,400. January 18th, board of health Widal positive. Urine negative. No relapse or diarrhea after admission. Distention slight.

CASE XLV. White man, aged thirty years. Admitted December 27, 1911, on seventh day of disease. Discharged February 12th. Temperature 102.4°; pulse 100; respiration 24. High point 104.8°, irregular but high. January 7th, seventeenth day, temperature dropped to normal, and on the eighteenth day, January 8th, rose to 105.4° and dropped on the nineteenth day, January 9th, to 102.4°, and on the same day arose to 105°, then by lysis to normal on January 14th, the twenty-fifth day of disease. Symptoms: Chills, then fever, headache, cough, vomiting. January 2d, spots; hospital Widal positive. White blood cells 7,200. January 9th, board of health Widal positive. Pressure, January 12th, systolic 125, diastolic 70. January 10th, urine, albumin, and granular casts, which cleared up later. No diarrhea, relapse, or distention.

CASE XLVI. White girl, aged nineteen years. Admitted December 28, 1911, on eighth day of disease. Discharged February 12th. Temperature 104.2°; pulse 128; respiration 24. High point 104.6°. Lysis on twenty-ninth day. Symptoms: Fever, headache, cough, nausea, constipation, abdominal pain and tenderness. January 2d, slight tympany. January 3d, tympany disappeared. Pressure, January 6th, systolic 103, diastolic 80. January 12th, Widal positive. White blood cells 8,500. January 18th, board of health Widal positive. Urine negative. No diarrhea, no relapse, slight distention.

CASE XLVII. White woman, aged thirty-three years. Admitted December 20, 1911, on tenth day of disease. Discharged February 11th. Temperature 99.4°; pulse 104; respiration 28. High point 103°. Lysis on thirty-second day. Symptoms: Chills and fever, vomiting, diarrhea, abdominal tenderness and pain, malaise. Pressure, January 6th, systolic 98, diastolic 70. December 21st, Widal suggestive. White blood cells 7,120. January 2d, Widal positive. White blood cells 2,200. January 18th, board of health Widal positive. Urine negative. No diarrhea after admission. No relapse or distention.

CASE XLVIII. Colored woman, aged twenty-three years. Admitted December 28, 1911, on tenth day of disease. Discharged February 5, 1912. Temperature 102.8°; pulse 109; respiration 32. High point 103°. Lysis on twenty-fifth day. Symptoms: Chills, fever, vomiting, diarrhea once, abdominal pain, splenic resistance. January 2d, Widal positive. White blood cells 5,700. Pressure, January 9th, systolic 98, diastolic 68. January 18th, board of health Widal suggestive, and on the twenty-fifth, positive. January 20th, urine, albumin, and granular and hyaline casts, that cleared up before discharge. No diarrhea, relapse, or distention.

CASE XLIX. White boy, aged twenty years. Admitted December 27, 1911, on sixth day of disease. Discharged February 7th. Temperature 102°; pulse 88; respiration 24. Lysis, January 6th, on sixteenth day. Symptoms: Chill and fever, headache, cough, diarrhea, spleen palpable, spots. Pressure, January 12th, systolic 100, diastolic 75. January 5th, Widal positive. White blood cells 6,100. January 9th, board of health Widal positive. January 30th, abscess developed in right cheek, opened and drained. Urine negative. No diarrhea after admission, no relapse or distention.

CASE L. Colored girl, aged ten years. Admitted December 23, 1911, on third day of disease. Discharged February 5th. Temperature 103.2°; pulse 124; respiration 28. High point 105°. Lysis on twenty-first day. Symptoms: Fever, cough, profuse diarrhea. January 3d, delirious. January 6th, Widal positive. January 31st, urine, slight cloud of albumin, no cast. Albumin disappeared. Blood pressure, January 6th, systolic 98, diastolic 70. No diarrhea after admission, no relapse or distention.

CASE LI. Colored boy, aged thirteen years. Admitted December 23, 1911, on tenth day of disease. Discharged February 9th. Temperature 104°; pulse 116; respiration 28. High point 104.4°. Lysis on twenty-eighth day.

Symptoms: Chills, sick headache, slight cough. December 27th, Widal suggestive. White blood cells 17,920. January 2d, Widal positive. White blood cells 6,200. January 9th, board of health Widal negative. Pressure, January 12th, systolic 105, diastolic 82. January 25th, board of health Widal positive. December 24th, urine had light cloud of albumin, no casts, albumin disappeared. No diarrhea, relapse, or distention.

CASE LII. White boy, aged fourteen years. Admitted December 18, 1911, on tenth day of disease. Discharged February 9th. Temperature 104°; pulse 112; respiration 28. High point 105.6°, until December 26th, when it dropped to 99°, then suddenly rose to 106°, dropped by crisis on December 28th, on the twentieth day. Symptoms: Malaise, epistaxis, diarrhea, vomiting. December 29th, hematuria for six days. December 18th, Widal negative. White blood cells 15,200. December 22d, Widal positive. White blood cells 8,480. January 9th, board of health Widal positive. Pressure, January 5th, systolic 86, diastolic 80; January 12th, systolic 105, diastolic 80. Urine showed a cloud of albumin, which disappeared. No relapse, diarrhea after admission, or distention.

CASE LIII. White girl, aged six years. Admitted December 30, 1911, on third day of disease. Discharged February 26th. Temperature 103°; pulse 112; respiration 28. High point 104.4°. Lysis on thirtieth day. Symptoms: Malaise, diarrhea, abdominal tenderness. January 2d, marked sudamina. January 3d, splenic resistance. Pressure, January 6th, systolic 90, diastolic 50. January 2d, white blood cells 4,700. Widal positive. January 18th, board of health Widal suggestive. January 25th, board of health Widal negative. February 5th, vaginal discharge. January 6th, hospital Widal suggestive. Diarrhea on admission, none afterward. No relapse or distention.

CASE LIV. Colored girl, aged fifteen years. Admitted December 29, 1911, on eleventh day of disease. Discharged February 23d. Temperature 103°; pulse 112; respiration 28. High point 104.4°. Lysis on thirtieth day. Symptoms: Malaise, diarrhea, abdominal tenderness. January 2d, marked sudamina. January 3d, splenic resistance. Pressure, January 6th, systolic 90, diastolic 50. January 2d, white blood cells 4,700. Widal positive. January 18th, board of health Widal positive. Urine cloudy, albumin and hyaline and granular casts, which disappeared. No diarrhea after admission, no relapse or distention.

CASE LV. Colored woman, aged twenty-two years. Admitted December 25, 1911, on sixth day of disease. Discharged February 20th. Temperature 103°; pulse 108; respiration 40. High point 105.2°. Lysis on forty-second day. Symptoms: Headache and pain in back, feverish. January 3d, dyspnea, delirious. Pressure, January 6th, systolic 110, diastolic 70. One spot. January 15th, two boils on buttocks. December 27th, white blood cells 4,560. Widal positive. January 18th, board of health Widal positive. Urine negative. No diarrhea, relapse, or distention.

CASE LVI. White girl, aged twenty years. Admitted December 27, 1911, on ninth day of disease. Discharged January 30th. Temperature 101.4°; pulse 80; respiration 30. High point 103.8°. Lysis on twenty-second day. Symptoms: Malaise, chill, headache, cough, vomiting, profuse diarrhea, abdominal tenderness. January 2d, spots. January 6th, spleen palpable; blood pressure, systolic 100, diastolic 71. January 2d, Widal positive. White blood cells 2,220. January 18th, Widal suggestive. January 25th, board of health Widal negative. Urine negative. No diarrhea after admission. No relapse or distention.

CASE LVII. White woman, aged twenty-two years. Admitted December 24, 1911, on seventh day of disease. Discharged January 31st. Temperature 104°; pulse 104; respiration 28. High point 104°. Lysis on twenty-fourth day. Symptoms: Exhaustion, chills, headache, slight cough, splenic resistance, spots. Pressure, January 6th, systolic 102, diastolic 80. January 12th, Widal positive. White blood cells 7,300. January 18th, board of health Widal positive. Urine negative. No diarrhea, relapse, or distention.

CASE LVIII. White girl, aged 2.5 years. Admitted December 24, 1911, on tenth day of disease. Discharged January 31st. Temperature 104.6°; pulse 160; respiration 28. High point 104.6°. Lysis on nineteenth day. Symptoms: Malaise. January 3d, spots. December 27th, white blood cells 17,520. Widal positive. January 18th, board

of health Widal suggestive. January 27th, board of health Widal positive. Unable to take blood pressure. Spleen not palpable. No diarrhea, relapse, or distention.

CASE LIX. White boy, aged 5.5 years. Admitted January 1, 1912, on twenty-second day of disease. Discharged March 2d. Temperature 101.4°; pulse 112; respiration 24. High point 101.4°. Lysis on twenty-sixth day. January 15th, sudden rise to 103°. Symptoms: Suggestive of mastoid abscess, did not develop; irregular until January 26th. January 19th, foot became painful, probably osteomyelitis. Symptoms: Malaise, constipation, spots. Pressure, January 6th, systolic 90, diastolic 62. January 15th, complained of pain in right ear, no discharge. January 16th, drums slightly bulging, painful on pressure over mastoid. January 6th, Widal positive. White blood cells 6,600. January 18th, board of health Widal positive. January 19th, pain in foot. January 21st, pain in left ear, no discharge. No diarrhea, relapse, or distention.

CASE LX. White girl, aged eighteen years. Admitted December 31, 1911, on twelfth day of disease. Discharged February 1st. Temperature 105.4°; pulse 128; respiration 32. High point 105.4°. Lysis on twenty-first day. Symptoms: Chill, vomiting, diarrhea, anorexia, headache, cough, abdominal pain, splenic resistance. January 4th, one spot. Pressure, January 9th, systolic 100, diastolic 80. January 18th, board of health Widal positive. White blood cells 6,750. Urine showed slight trace of albumin and granular casts, which disappeared. No diarrhea after admission, no relapse or distention.

CASE LXI. Colored woman, aged twenty-one years. Admitted December 15, 1911, on eighth day of disease. Discharged January 21st. Temperature 103.4°; pulse 100; respiration 24. High point 104°. Lysis on twenty-second day. Symptoms: Fever, malaise, general muscular soreness and tenderness. Spleen enlarged. Pressure, January 9th, systolic 118, diastolic 70. December 22d, white blood cells 12,000. Widal slightly suggestive. January 12th, white blood cells 6,450. Widal negative. January 18th, board of health Widal positive. Urine showed albumin and granular casts, which cleared up. No diarrhea, relapse, or distention.

CASE LXII. White girl, aged sixteen years. Admitted December 7, 1911, on twelfth day of disease. Discharged January 13th. Temperature 102°; pulse 108; respiration 28. High point 103.4°. Lysis on twenty-eighth day. Symptoms: Malaise, slight constipation, spots. Pressure, January 6th, systolic 86, diastolic 60. December 9th, Widal positive. White blood cells 3,600. January 18th, board of health Widal positive. Urine negative. No diarrhea, relapse, or distention.

CASE LXIII. White girl, aged seven years. Admitted December 29, 1911, on ninth day of disease. Discharged March 1st. Temperature 106°; pulse 140; respiration 28. High point 106°. Lysis on twenty-ninth day. Symptoms: Pain in chest, diarrhea, drowsiness, abdominal pain. January 5th, rose spots. Spleen enlarged. January 1st, Widal positive. White blood cells 3,400. Pressure, systolic 90, diastolic 70. January 18th, board of health Widal positive. No diarrhea, relapse, or distention.

CASE LXIV. Colored boy, aged eleven years. Admitted December 22, 1911, on eighth day of disease. Discharged March 1st. Temperature 105°; pulse 124; respiration 28. Lysis until January 8th, rose to 103°, and the following day to 105°. Lysis, but of irregular type. January 19th, slight rise in temperature, due to parotiditis. Final lysis on thirty-seventh day. Symptoms: Malaise, chills, headache, epistaxis, abdomen slightly distended. December 24th, tympanitis, delirium. December 31st, Widal positive. White blood cells 9,520. January 18th, board of health Widal positive. Urine showed albumin and hyaline casts, which disappeared. Pressure, January 6th, systolic 100, diastolic 40. No diarrhea or relapse. Slight distention.

CASE LXV. Colored boy, aged fourteen years. Admitted January 15, 1912, on eighteenth day of disease. Discharged February 25th. Temperature 104°; pulse 100; respiration 32. Lysis on twenty-seventh day. Symptoms: Headache, pain in neck, epistaxis, anorexia, diarrhea, vertigo, malaise, abdominal tympany. Pressure, January 16th, systolic 102, diastolic 68. January 18th, Widal positive. White blood cells 6,050; board of health Widal positive. No diarrhea after admission, no relapse. Slight distention.

PULMONARY TUBERCULOSIS AND PERIPHERAL NERVOUS SYSTEM.

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Symptoms from disturbance of the peripheral nervous system occur not infrequently in pulmonary tuberculosis. The clinical picture presented often is confusing, and at times of misleading diagnostic nature. It does not seem to be generally understood that even at the earliest one may find as a part of the symptomatology of this disease disturbances in the nervous system simulating rheumatism, neuralgia, myalgia, shoulder joint pain in the arms, on the chest, in the abdomen, in the back, and other parts of the body. The following case illustrates one form of these affections:

CASE I. A young man of twenty-five years, a medical student, began to suffer from loss of appetite, gas in the large intestine, and slight loss in weight, and showed a daily temperature of 99.5° F. There was slight expectation, but never any bacilli. The von Pirquet was positive. Physical signs were very uncertain, viz., slight dullness over the right apex, with muscle spasm and rough breathing but no râles. There was constant aching in the calves of both legs, such as is felt after severe fatigue or a bruise. The knee jerks were exaggerated, the skin slightly hyperesthetic, muscle power normal. Blood showed a constant marked eosinophilia, and some parasitic bowel infection was suspected; also trichinosis was thought of. Under dietetic and hygienic treatment, flushing the bowel, and tuberculin treatment the temperature came to normal, the body weight was restored, cough and sputum disappeared and patient became in every way well. Still continued the aches and soreness in the gastrocnemius in spite of electrotherapy, etc. The symptom has been slowly disappearing, and at present, one year after the onset, is about gone. It appeared at the earliest and has disappeared at the latest. The knee jerks are still lively and there is still some hyperesthesia and hyperalgesia over the calves of both legs.

It may be noted that Walshe, in 1860, described similar pains in the legs in cases of pulmonary tuberculosis. Beau, in 1902, also describes this syndrome, other earlier writers on this subject were Laudet, Schnidt, Steinert, and Jessen.

More recently, Poncet has given this subject considerable attention. Pitres and Vaillard and Hammer (1898) did much to clear up these symptoms. They described several different form of neuritis in tuberculosis: First, a latent neuritis, without clinical symptoms, but demonstrated at autopsy; second, neuritis causing atrophy and paralysis in the muscles; third, neuritis with sensory symptoms only. Many observers (see Jessen) have shown that the tubercle toxine was capable of causing distinct pathological changes in the nerve fibres. Furthermore, the neuritis does not seem to be dependent upon the cachexia or anemia or necessarily upon the alcoholic or syphilitic heredity, which idea has been advanced by some observers.

Beau's *melalgie* in some cases approximates the clinical picture of the "melalgia paræsthetica," which is an affection of the external femoral nerve. Bernhardt and Roth described this syndrome in 1895, and Joseph Miller reported a case in 1911. The external cutaneous femoral nerve arises from the second and third lumbar, emerges at the outer border of the psoas, and crosses obliquely in front of the iliacus to reach the outer side of the thigh.

The peculiar disturbance of the nerve characterized by paresthesia, or more or less severe pain when the individual is standing, is an unusual condition. Bernhardt considered a toxic neuritis as the most important factor in its causation (particularly typhoid fever); others have considered mechanical causes, owing to its peculiar anatomical relations, rendering it liable to compression. Among the mechanical factors to be mentioned are pregnant uterus, pelvic tumors, varices, tight bands, direct trauma, and flat foot. Miller reports a case due to pressure of a corset at the edge of the anterior superior spine where the nerve passed downward and outward. The pain is burning in character, but most annoying is the paresthesia and sensitiveness of the skin to the clothing over the affected area. The area affected is triangular in outline, the upper border forming the base, about five cm. above the iliac bone, and extending from the crest of the ilium to five cm. midward from the anterior superior spine. The apex of the triangle is at the junction of the lower and middle third of the thigh. Two cases of this peculiar affection have been observed in association with pulmonary tuberculosis:

CASE II. Young woman, aged twenty-five years, complained of pain and tingling on the outer side of left thigh, which at times would become so intense that after walking she would be compelled to sit down. The paroxysms usually came on while walking and would pass away in a few minutes. Often there was a numbness and creeping sensation. This had existed for a number of years, disappearing at times completely. Examination showed an area of hyperalgesia and hyperesthesia extending from the anterior superior spine to the junction of the upper and middle third of the thigh. There was no mechanical factor; and from the presence of manifest pulmonary tuberculosis, improvement in which condition gradually caused a complete disappearance of the paroxysms, we concluded the condition to be a toxic neuritis due to tuberculosis.

CASE III. Man, aged thirty-seven years, with exactly similar symptoms but with a rather acute onset, having at the time of examination been suffering only six weeks. Curious to relate, was the presence of a small fatty tumor in the skin in the area affected on the outer side of the right thigh. This, however, had been there all his life and had no apparent relation to the paresthesia. In this case there was, beside distinct hyperesthesia, marked disturbance in the temperature sense in the affected area. The lung condition was severe and the symptoms persisted until the death of the patient.

Schmidt, in 1899, described a peculiar, painful area under the clavicle over the affected apex. This was to be demonstrated by pressing the finger tips down into the supraclavicular space. He called this *unilateral Plexus Druck Schmerz*, and found it a quite constant sign or symptom in early tuberculosis. He attributed this symptom to adhesive inflammation at the apex of the lung, which involved the brachial plexus. He described also, associated with this sign, neuralgic pain in the arm, paresthesia, and localized sweating in the hands, due to irritation of the brachial plexus cords, particularly the inner cord. I have frequently observed these signs, not only in early cases, but in those where the lesion was quiescent or healing.

There is another factor in the production of such symptoms, and that is the irritation of the segment of the cord on the basis of Head's zones. The earlier writers attributed pain and tenderness about the chest entirely to localized pleurisy. By the work of Head, Wurtzen, Jessen, and others we know that changes in the lung give peripheral signs

on the chest through the segmental areas in the spinal cord. On the basis of this theory one observes quite early in the development of pulmonary tuberculosis, aching between the shoulders, tenderness over the dorsal spines, rigidity in the muscles of the chest, tenderness or hyperalgesia in the skin over the affected area, as well as tender points at the maxima of Head's zones, and often in the axillæ about the nipple area, at the insertion of the levator anguli scapulæ, under the angle of the scapula, and down on to the abdomen. At times one may get a complicated picture from the presence of underlying pleurisy which gives localized deep tenderness, and again often referred pain, muscle rigidity, and skin tenderness referred to the back of the thorax, to the epigastric area, and to the area supplied by the third or fourth cervical segment (the origin of the phrenic nerve), from diaphragmatic pleurisy (see Capp's article). Also in these areas atrophy on the skin and muscles take place and, according to Gibson, who showed such changes to occur in angina pectoris, from disturbed segmental innervation. I have studied these symptoms in a large number of cases and have been able to demonstrate them in a large number. The following case is typical:

CASE IV. A young woman of twenty-four years, unmarried, by occupation a school teacher, three years ago began to suffer dull pain under the left clavicle. It was not constant, but was worse when fatigued. First noticed the pain when she had a "cold." Described it as a "burning" feeling, as if it was inflamed, seemed to be in the skin. Later had a "lame" feeling in the left arm, as if the arm was asleep. Began to cough recently, and a few months ago (February, 1911), spat blood. On examination there was considerable infiltration in the left apex, moist râles, rigidity of the left trapezius, sternocleidomastoid, and pectorals, local hyperalgesia over the apical region and part of upper lobe tenderness on pressure over the left apex, and over the second, third, and fourth dorsal vertebræ. There was also tenderness over the supraspinatus and the insertion of the levator anguli scapulæ. This symptom (the pain) was very difficult to relieve, although almost every method was tried. It gradually cleared up under general treatment for the tuberculosis. The important point is that this symptom was a very early sign.

The clinical picture afforded by these peripheral signs, sometimes neuritic, referred, or mechanical in character, is very varied. Occasionally a patient's first complaint is of rheumatism of the shoulder. Recently one patient was examined who had actually been under treatment for this supposed affection, when the cause was tuberculosis pulmonalis. This "rheumatic" pain in tuberculosis has been long recognized. Petruschky early described vertebral pain or tenderness over the second to seventh dorsal spines. Leudet also observed the neuralgic pains in the shoulders in pulmonary tuberculosis. Bozzolo, Laserre, and Weill describe cases of "so called tuberculous rheumatism," sometimes in the tendons or joints or bursæ. Remak described a rigidity of the arm and shoulder muscles in a case of phthisis which he ascribed to a reflex action on muscle tonus. There was no tetany. Often these painful affections, which are of peripheral or referred character, are the first symptom which sends the patient to the physician and their significance should be fully understood.

In connection with these nerve disturbances may be mentioned the exanthemata. Jessen described a

neuritis of the peroneus nerve with a psoriatoid rash following the course of the nerve. Herpes zoster is a frequent symptom of pulmonary disease (herpes on lips in pneumonia). Head's observations on zoster were made many times in connection with pulmonary tuberculosis. In this connection the following cases are of interest:

CASE V. Young woman, of thirty years, with a slight area of consolidation at the right apex, began to suffer stinging pain along the course and distribution of the ulnar nerve in the right arm. Then the little finger, ring finger and part of middle finger felt numb. In a short time a herpetic rash appeared on the ulnar side of the hands, particularly the right, the little finger and ring finger, part of the middle finger to the wrist. The lesions consisted of reddish white bullæ, pin head to small shot in size, in places coalescing to form larger masses. Sensation was numbened in this area. There were no evidences of gastrointestinal, tonsillar, or other of the usual causative factors of these lesions. Examination of the chest showed a marked inflammation of the right apex, and slight at the left apex. Furthermore there was marked hyperalgesia over the upper chest, particularly noticeable over the breasts. There was some aching between the shoulders, with tenderness over the second to the fifth dorsal vertebræ.

The next patient had a somewhat remarkable condition which seemed to bear a close connection with her pulmonary status:

CASE VI. Young married woman, aged twenty-nine years, with widespread infection in both lungs, daily high temperature, and markedly toxic, had been under treatment with I. K.¹ for several months. During the first month the daily temperature range was not over 100° F., and gradually fell to not over 99° F. Then about every two weeks there would be a period of several days of high temperature, looseness of the bowels, and toxemia. During these periods the patient would become tearful, depressed, very nervous, and had difficulty in sleeping. At the same time there would appear a peculiar rash, consisting of reddish, raised, sore masses from pin point to English walnut size. The peculiar thing about this eruption was its distribution. It first appeared on the palm of the right hand, the largest spot at the base of the index finger, where the skin was red, thickened, and sore, like a callous place; there was another at the base of the little finger, and several along the fold of the thumb in the palm. The lesions appeared in these same spots on the left hand. They remained on the right hand for two weeks at one time, and at times were painful, somewhat like a neuralgic aching. Sometimes they would rapidly disappear, only to reappear during another febrile reaction (? tuberculin reaction). They soon appeared in the same areas on the soles of the feet, causing much annoyance. Only once was there a lesion elsewhere on the body, a large red mass appearing on the posterior aspect of the skin over the ulna at about its middle. This was quite sore and disappeared quite slowly.

When the lesions disappeared they left no trace whatever. The peculiarities of these lesions were their occurrence only during febrile rises, their association with marked mental symptoms, and their peculiar distribution, being in similar areas on the palms of the hands and soles of the feet, only one lesion appearing elsewhere. On account of these facts I am inclined to attribute them to a nerve root irritation or an irritation of the peripheral nerve itself, in the nature of a zoster. While the lesions resemble in some respect an ordinary erythema nodosum, the peculiar discrete distribution, as well as the lack of joint symptoms and other factors usually associated, were absent. Therefore, I believe that they were produced by the toxic action of the tubercle enzymes, and associated with the periods of invasion of the lung. The only other pos-

sibility is the possible action of I. K. in producing a "serum disease," but I never have observed such a condition to be brought on by I. K.

Erythema nodosum is not uncommon in pulmonary tuberculosis. Two cases have come under observation during the past year.

CASE VII. (Erythema nodosum.) E. S., three years ago, had a stiffness in both knees and elbows, walked with difficulty, and feet were swollen. The feet were so swelled, that she could scarcely walk. This was at the time when she had high fever and was in a very weakened condition, also had sore throat and tonsillitis. Was not constipated. Patient had been under treatment for pulmonary tuberculosis, for the past year and has presented a very stubborn chronic course, occasional fever, marked bronchial secretion with asthmatic symptoms. She is a slender girl, nineteen years of age.

April 1st. Noticed yesterday what seemed to her to be a bruise on her left leg at the lower extremity near the ankle. On examination there was a red swelling in the subcutaneous tissue about the size of an English walnut, quite tender, situated at the lower end of the tibia. Also there were similar bumps on the inner side of the left knee, and one about midway on the tibial surface between knee and ankle. There were also a few on the inner surface of the right knee. For the past week has been weaker than usual, rapid pulse, complete loss of appetite; bowels were normal. Temperature, pulse, and respiration were higher, slight rise to 100° F., beginning four days after a dose of I. K. and lasting five days.

She was put on salol, grains ten, every two hours, and was taking five drops of tincture of digitalis every four hours, tincture of nux vomica, ten minims three times daily after meals. Three days later, several other lumps appeared on the right leg in a similar position. There was no aching or other grippal symptoms. There was some pain in the left hip joint. The temperature showed a daily rise to 100° F., pulse 90 to 120, for six days during which there were several crops of nodosities on the extensor surfaces of the limbs and both elbows became sore. She complained of great pain in the left hip and both knees ached.

On the fourth day of the fever she received 2-IV of Spengler's I. K. Three days later the pulse fell to 100, and the day following the dose it had showed evidences of slowing. Also on the third day following the dose the temperature had fallen to normal with a maximum of 99.4° F., pulse 90 to 96. On that day she received the next dose of I. K., 2-III, the next day the temperature was from normal up to 99° F. In six days the pulse showed considerable slowing, the temperature not rising above 99.4° F., and the pulse varying on an average between 80 and 100. During that time, however, she suffered from pain of an aching nature in both heels, both knees, the left hip, both elbows, and there were several recrudescences of nodosities. I. K. was given on April 24th and 29th, 2-II and 2-I, respectively. On April 13th she was feeling fairly comfortable, the bumps had become a bluish green, showing absorption, and no new ones had appeared. The salicylates were discontinued early, before the temperature went up, having caused gastric pain after each dose; therefore the course of the condition was not influenced by the salol.

CASE VIII (erythema nodosum). Young girl of fifteen years. Was an early case with slight infiltration at both apices, with slight daily rise in temperature. Patient was being treated with Spengler's I. K. and had gained eleven pounds in less than two weeks. Suddenly the temperature rose to 102° F. and there appeared a number of reddish inflammatory masses about two by two cm. in size, upon the extensor surfaces of the legs and arms, with a few on the trunk. Several on the shins seemed to arise almost from the bone and were exquisitely tender. The general symptoms were headache, malaise, aching through the limbs, but no joint swelling, nor any gastric or intestinal disturbances. White blood count showed 16,200 differential, neutrophils fifty-eight per cent., eosinophiles 2.6 per cent., lymphocytes 26.8 per cent., myelocytes 0, transitionals 11.8 per cent.

For a period of nine days the temperature continued high (102.4° F.) and while during this time a few new lesions appeared, they gradually faded, becoming green, yellow, and disappearing. Through it all she gained two

¹*Immun Körper*, or Spengler's tuberculin.

pounds during the week. The leucocytes fell to 11,100. The indican was increased and the urine also showed a diazo and much albumin. There was some increased cough and expectoration, and marked nervousness, insomnia, and restlessness.

While this case belongs to the pure erythema nodosum classification, the association of such lesions with general symptoms resembling a tuberculin reaction are sufficiently interesting to cause one to study them more closely. Tuberculosis is not usually supposed to cause such lesions, hence this report.

The idea that erythema nodosum might be of tuberculous character was first put forward by Landouzy, and from time to time cases have been described in association or followed by tuberculosis. M. M. Chauffard and Troisier (*Semaine médicale*, xxix, page 34) have succeeded in demonstrating lesions clinically identical with erythema nodosum after the injection of tuberculin in a girl of eighteen years, the subject of tuberculosis of the lungs.

Barbier and Lian (*ibidem*, page 226) showed a case of this disease in a girl of fourteen years before the Société médicale des hôpitaux de Paris, in whom a positive reaction might be produced by the injection of other serums, but the last observers were able to reproduce locally the lesions on this affection only by tuberculin, and not by any other serum. In their patient fresh lesions appeared upon the legs as a result of the injection, although the original eruption had faded.

Marfan relates three cases of erythema nodosum under his care, followed respectively by tuberculous pleurisy, arthritis of the knee, and tuberculous meningitis. He concludes, therefore, in the light of recent work with tuberculin, that this disease is often the result of bacillary infection (*Presse médicale*, li, page 457, 1909; *British Journal of Tuberculosis*, iv, 5).

Obstinate sciatica, painful back, occipital neuralgia, painful toes and heels, morbus digiti (dead finger) are among the many curious complications met with in the clinical course of pulmonary tuberculosis. Many of these cases show actual evidence of neuritis, absent or exaggerated knee jerks, changed skin sensation, tenderness along the course of the nerves, and muscular changes. The following case is of interest:

CASE IX. Young man of twenty-seven years, showing an old chronic infiltration through the right lung and a recent lesion at the left apex, gave the following history: About eighteen months prior to examination began to suffer from soreness in the back, low down in the sacral region, which made it impossible to lie on either side. No history of trauma. The trouble increased and he began to suffer from cramps in the anterior thigh muscles, worse at night, would come on at intervals of every two hours. Coughing would cause severe sharp pain in back and down thighs. Finally had to go to bed, and resorted to morphine to relieve the severe pain. During this time was unable to stand. While he had been an unusually heavy eater, and used some alcohol, there was no evidence of either acute rheumatic or alcoholic neuritis. About the same time he began to cough and expectorate and suspected lung trouble. On examination, there was a painful area on both heels, about the middle, and in these areas slight redness and much tenderness. The toes were free from disturbance. The knee jerks were lively, calves slightly tender, also tenderness over the sacrum, particularly the lower part; the sciatic nerves were also tender

on pressure. Hands were tremulous, no Romberg, pupils normal, other reflexes normal.

Under general hygienic dietetic treatment and tuberculin these symptoms slowly subsided. The salicylates and similar preparations had absolutely no influence. I regard the condition as a tuberculous neuritis or neuralgia. Interesting symptoms are also those of the following case:

CASE X. Hebrew, twenty-eight years, travelling man. At the onset of his disease, before the diagnosis was made, he was stopping in Denver. He was extremely nervous, and became possessed of a peculiar obsession, in that it was absolutely impossible for him to cross a wide street alone. This came on suddenly and I rather believe it was indirectly brought about by the effect of the altitude. Still, when he came to California the idea persisted, in that he could not cross a wide street alone, nor even a wide room. During the course of his disease, he at one time became delirious, and exhibited a typical infectious and exhaustive psychosis for several weeks. From this he recovered. He had marked consolidation of both upper lobes, a daily temperature of 101° F., was very constipated, had much gas in bowel, was continually belching, had chronic backache, tenderness over the second to seventh dorsal spines, and hyperesthesia over the segments corresponding to these zones, even on to the abdomen. Recently he showed a very painful condition of neuralgic nature in the right leg and thigh. The calf muscles were sore to the touch, tender over the sciatic nerve and around the hip, with difficulty in walking, exaggerated knee jerks, and marked electrical excitability of the thigh and leg muscles. The high frequency current seemed to do more good than anything. There was no alcoholic or syphilitic history.

CASE XI (marked neuritis in pulmonary tuberculosis). Man, aged forty-seven years, ill three years with a chronic fibroid phthisis, began to suffer excruciating pain at the bottom of the feet, the big toes, and particularly the heels. In this case there was an old syphilitic history (fifteen years prior to tuberculosis), well treated, however; Wassermann was negative. The condition first began in the right heel as a dull neuralgic pain, shooting up the leg. Pain was increased on movement. There was no hyperesthesia of the skin over the tender spots. Complained of tingling sensation, and was very nervous and emotional; sphincters normal; and some dull headache, urine normal, no gastric crises. Sometimes felt cold dead sensation on anterior part of right leg, even as far back as five or six years ago. Knee jerks exaggerated, pupils normal. Marked tenderness over the sciatic nerve and several spots about the right hip. No joint disease present. The patient was unable to stand and was very miserable. Mercurial treatment was ineffective. Salicylates, colchicum, etc., were of no avail. Finally the use of electrolytic catalysis of iodine over the tender areas seemed to do the most good. This patient had a marked case of tuberculous neuritis, and, as the disease became quiescent, the symptoms gradually disappeared.

CASE XII. Man, forty-five years old, had suffered from asthma and bronchitis for twenty years; only recently found out the tuberculous nature of the process. The case exhibited, beside marked neuritic symptoms, a mental aberration characterized by psychic impotence, inability to concentrate the mind, emotionalism, and neurasthenia. One brother had tuberculosis, and one cousin was odd and secretive. His early life was uneventful; was a successful business man and never ill until he married. He stated that he overindulged in sexual intercourse, became depressed, emotional, slept poorly, and about the same time a cough developed. Became so depressed and apathetic that he gave up active business in 1903. In 1907 began to suffer from pain and a feeling of weakness in the small of his back, attributing this to a fall. Had an idea that the left testicle was shrunken, which, however, was erroneous. No history of alcoholism or syphilis. Some dull headache for past twenty years. About one year ago, began to have cramplike pain in his legs, particularly in the right hip joint, often could not move right leg. Would come on while walking on the sidewalk and he would have to stop for quite a while before continuing. There was never any rheumatism, no joint swelling, or sore throat.

He complained of a numbness of the right little finger, running up to the elbow. There was no tremor of hands, no paralysis, no sphincter symptoms, no gastric crises; eyesight was normal. One attack of facial neuralgia fifteen years ago, but no symptoms or signs of paralysis.

There was pain and tenderness over the sacrum near the coccyx, on the left side, tenderness over the right sciatic nerve, no tenderness over the spines, no marked changes in sensation, muscular movements slow, spinal column seemed to lack elasticity, bent at knees to pick articles from floor, slight depression over eleventh and twelfth dorsal spines; muscles tender and painful on both sides of thighs, more on right side, particularly on movement. Knee jerks exaggerated, also ankle jerks, but equal; muscles of both forearms equal, grip good. (Stated that he had typhoid fever twenty-two years ago, but no definite spinal symptoms at that time.) Muscles, right thigh 45.5 cm., left 47, right calf 31.5 cm., left 34 cm. Muscles of left calf more developed than right. Stated that skin felt flabby and dead over left leg. No Babinski, no paralysis. Cremaster reflex normal, some tenderness over left crural region, and over left Poupert's ligament. On standing, the right gluteal fold was lower than the left. No joint stiffness. Some tenderness and dull pain at base of head. No Romberg; left pupil slightly sluggish in reaction, but otherwise normal. Speech slightly of scanning nature but not definitely so. Sexual power about gone. Showed slight incoordination with left hand. Left facial furrow deeper than right. Tongue protruded normally, no tremor. The lung condition showed diffuse thickening through both lungs, with bronchiectasis, and many bacilli (tubercle) in sputum. Slight daily rise of temperature, activity in left upper lobe of lung, pulse 100 to 110.

In this case one would suspect multiple sclerosis, but the long duration, the absence of very definite scanning and tremor, as well as his age, were against this diagnosis. For paresis also certain diagnostic signs were absent. The long duration of the tuberculous infection finally led us to the conclusion that the disturbances were due to the tubercle toxine, with probably a psychoneurosis as a background. Under general treatment the patient improved a great deal and gradually became stronger and mentally more alert.

CASE XIII. Man, thirty-three years old, four years ill, having also a laryngeal infection, began to suffer from severe pain of cramplike nature in both calves, difficulty in moving the legs, and swelling of the feet. The kneejerks were very lively, there was some redness and swelling in both popliteal spaces with marked tenderness extending into calf muscles. At first the skin over the back of the leg and outer side was hyperesthetic, later it became anesthetic.

Partial paralysis ensued, and the patient is still under observation. This illustration of neuritis in pulmonary tuberculosis is of interest because of the bilateral nature of the affection.

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SCARLET FEVER.

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If a patient present no suggestion of contagion, he may, happily, go on to a perfect recovery, though handicapped by a wrong diagnosis or by no diagnosis at all, and nobody be a bit the worse. But let there be a possibility of something "catching" and the situation is entirely changed. It is to everybody's advantage—including his own—that the doctor make a correct diagnosis and be quick about it, for it too frequently happens that there is really no place where a contagious suspect may lay his head.

Among the exanthemata, scarlet fever presents the greatest number of cases giving rise to difficulty in diagnosis. This is so both because scarlet fever presents many widely differing clinical pictures, and because many distinct clinical conditions more or less closely resemble scarlet fever. In the literature pertaining to this disease, written during the past sixty-five years, one can scarcely fail to be impressed by the multiplicity of variations, or even radical differences, given in connection with every symptom. Take, for example, the eruption; it may be intense or faintly marked; universal in its distribution or strictly localized; rough or smooth; mottled or uniform; erythematous or ecchymotic; it may persist for a week or more, or be as evanescent—almost—as a blush; and, lastly, it may be absent altogether! A corresponding array of possibilities is given in connection with every cardinal symptom. To offset all this, very little is said about the many things scarlet fever may not do. Yet, in order that our conception of the disease may not be a worthless and unworkable jumble of ideas, involving fever with sore throat and rash, we must bear in mind that variations in individual symptoms have their limitations; that no one symptom may be the sole basis for a diagnosis; and that the order of appearance and duration of symptoms is much less variable than the symptoms themselves. The cardinal symptoms are fever, endanthem, and exanthem. Their character, duration, and sequence must guide us.

The onset of scarlet fever is invariably accompanied by a temperature above the normal. If the prodromata, headache or nausea or vomiting or all of them are present, fever will surely accompany, persisting for four or more days without intermission. The temperature usually rises as the eruption appears, up to the fourth day of the disease—in favorable cases. It may never reach 100° F. Mildness of febrile movement is not against a diagnosis of scarlet fever. Afebrile cases, or cases with initial fever, lasting only twenty-four hours or less, do not occur.

The endanthem is synchronous with the fever. The prodromals just mentioned, with or without chills or convulsions, indicate a mucous membrane lesion somewhere—in stomach, intestines, or kidneys. If these symptoms are absent, sore throat with fever ushers in the disease. The throat affection may amount to little or nothing subjectively. There may be a mere tickling, or the patient may insist that he is conscious of nothing wrong

with his throat. Hyperemia, however, though painless, will be present. The endanthem never misses the fauces. In the mildest cases, pillars, tonsils, soft palate, and uvula are congested. This congestion, or the more serious affection, if present, persists like the fever through the period of eruption. The intensity of the throat lesion bears a most intimate relation to the height of the fever. Chronic or immediately preceding acute diseases of the throat, or operations, may conceal the throat lesion of scarlet fever.

The exanthem must be insisted on as *sine qua non*. History of exposure, followed within a week by vomiting, sore throat, and fever, may offer the strongest temptation, but we must refuse to make a positive diagnosis of scarlet fever *sine eruptione*. Such cases certainly require isolation and the closest watching; but, if we cut loose from the exanthem, we are bound to drift into a sea of troubles where uncertainties, dangers, and ultimate disaster surely await us.

The exanthem easily takes first place among our cardinal symptoms, in the number of variations from what we all know to be usual and characteristic. These variations, however, have their limitations. The true exanthem, i. e., the dermatitis with subsequent desquamation, does not appear on the face. In many cases of scarlet fever the face gives no indication at any time that the patient is ill. In many cases the face is flushed. This flush affects the cheeks, temples, and eyelids, which may be swollen; but there is no dermatitis; the skin is smooth. The flush does not extend to lips and chin. Circumoral pallor is a real sign of scarlet fever. There is a good deal of insistence in describing the dermatitis, with its miliary vesicles, on the forehead and along the line of the hair. I can account for this only by thinking that the patients had prickly heat with their scarlet fever—or without it. The rash is sometimes mottled—resembling measles—never throughout its entire extent, but in patches only as on the forearms or trunk. These mottlings, furthermore, never show a crescentic arrangement and never appear on the face. The rash may be strictly localized. I have seen an undoubted case of scarlet fever with a patch of exanthem on the extensor surface of each elbow and under the chin, and none elsewhere at any time. Corroboration from throat and temperature is doubly necessary in such a case; and, fortunately, is usually present in added measure. Even when most patchy, scant, or otherwise irregular the eruption of scarlet fever never presents a distinct margin; there is no easily traceable outline between rash and normal skin, such as is often discoverable in digestive, drug, and antitoxine rashes. The rash of scarlet fever, again, does not begin to desquamate on the day of its appearance as do many of the idiopathic skin diseases. Best guide of all, however, is the duration. The exanthem may come out quickly. A skin normal to the eye at 9 o'clock in the morning may show an intense scarlet fever rash by high noon. It never fades in this way. Whatever the character or extent of a scarlet fever eruption may be, if it shows first to-day, it will be present to-morrow and the day after. Its sudden

appearance, just referred to, is infrequent, progress from chest to feet usually extending over twenty-four hours or longer; once "out," however, on any given area, its presence there is assured up to the third day and without any marked change in character during the decline. If the dermatitis is to be excessive, it is so from the first. If hemorrhages are to be present, they appear early; so with mottlings and other irregularities. Intensity of rash is not intimately related to height of temperature or to severity of poisoning.

The pulse of scarlet fever is a rapid pulse. So many things may quicken a pulse, especially in children, that the rate here, as elsewhere, is of little diagnostic value.

The tongue, like the face, may give no indication at any time that the patient is not in his ordinary health. It may be white coated at the onset of the disease, and later, when the coating disappears, present its usual appearance; or it may present the white coating with enlarged papillæ showing through; edges and tip not coated and fiery red. This becomes, after three or four days when the dead epithelial coating has desquamated, the strawberry tongue. This tongue is clean and red, with prominent papillæ. It is unique. Toward the end of the first week it may give very gratifying confirmatory evidence.

The great majority of cases of scarlet fever desquamate in a way familiar to us all—beginning any time from the first to the fourth week and completed in five or six weeks from onset of disease. Skin comes off in flakes or patches of appreciable size. The abnormality is especially noticeable on palms and soles. But as the rash is variable, so is the desquamation. It may be so fine on the general surface of the body as to amount to little more than a slight increase of natural scurf, and escape notice if the patient has a daily bath. The palms and soles of scarlet fever patients do not invariably desquamate. We are prone to believe, if there is no desquamation by the end of the fourth week—for it may be delayed so long and then be fairly abundant—that the diagnosis was wrong. Undoubtedly, however, there are patients presenting fever, sore throat, and exanthem mild in form, yet all characteristic of scarlet fever, who do not desquamate. Sufficient and all around satisfactory evidence of the first week must not be thrown out of court through absence of desquamation. Again, many other conditions result in desquamation closely simulating that of scarlet fever. Measles, or German measles, with intense exanthem, may desquamate on the trunk and the upper extremities, including the palms. (I have never known either of these diseases to cause desquamation on the soles.) Counterirritants also, newly acquired habits of bathing, various forms of dermatitis, malnutrition with continued fever may bring about closely similar conditions. Hence we must differ from those who say that desquamation is the sure and infallible test, either for or against the presence of scarlet fever. With a history of preceding illness, with complications or sequelæ, desquamation often gives us valuable and sufficient corroboration; but, just as no rash however characteristic, without

fever or angina, may be made the sole basis for a positive diagnosis, so desquamation, unsupported by other evidence, does not lift the burden of proof entirely from our shoulders. Isolation, until the offending scales are removed, is the safest course.

Concerning malignant scarlatina, I will quote a few sentences from a standard treatise of sixty years ago; remarking in passing, that the same ideas, with very little variation in expression, come right down the line to the present day: "In certain cases of extreme violence the system is at once overwhelmed by the force of the disease, . . . the affection of the throat not being essential to the malignancy; . . . feeble attempts may be made at reaction; febrile heat may be developed to disappear again; and even some violet specks may be seen as if they were endeavoring to struggle through the skin. But the resistance soon ceases, and the patient dies upon the second or third day." Further on, "violent initial pains in the loins" are mentioned and "reluctant partial and dark hued efflorescence." The same class of cases is referred to by a much more recent author when he says: "The patients have high temperatures or low temperatures with collapse, . . . bleeding from mucous membranes is often present. The eruption is irregular and dark colored. The patients die in from eight hours to two days."

I believe it is historically correct to say that an indefinite number of centuries ago, measles and scarlatina were regarded as varieties of smallpox; that later, measles emerged as a distinct disease carrying scarlet fever with it; and that scarlet fever continued to be talked and written about as a variety of measles until the middle of the sixteenth or the beginning of the seventeenth century. During this confusion among the exanthemata, the malignant cases must have been worst confounded, for they are most indeterminate. Smallpox and measles present malignant cases. What do they show? The quotations cited tell us exactly: An ill defined, scanty, dark hued erythema, internal hemorrhages, collapse, death within forty-eight hours—with an initial scarlatinal blush on the skin, and congested fauces to add to the uncertainty. With the disappearance of smallpox, however, these cases have also disappeared, for malignant measles is so rare in this community as to be practically negligible—furnishing only the exceptional case necessary to prove the existence of the rule. Concerning fatal cases of scarlatina, I submit that the severity of the throat affection is in accord with the intensity of the poisoning; that the temperature is high to the end; and that the fatal result does not occur as early as the second day from the onset; and, nowadays at least, is not by way of collapse and subnormal temperature.

Many more mistakes are made by giving scarlet fever to those who have not it than by withholding it from those who have. In any case, seen on the first or second day of the eruption, where doubt arises, either from mildness or irregularity of symptoms, a second visit, twenty-four hours later, is the best safeguard against a wrong diagnosis.

107 LEXINGTON AVENUE.

PRESCRIBING GLASSES.*

A Caution against Indiscriminate Prescribing in a Certain Class of Cases.

By D. FOREST HARRIDGE, M. D.,
Philadelphia.

The following remarks apply only to that class of patients of school age up to possibly fourteen or fifteen years, patients in whom there may be present low degrees of simple hyperopia, or low hyperopia with a low amount of hyperopic astigmatism, the asthenopic symptoms being of an indifferent character, the axes of the cylinders being symmetrical. Myopia and mixed astigmatism may be entirely eliminated from the domain of this paper. It is believed by the writer that all are agreed such cases should always be fully and accurately corrected.

Possibly the writer may be accused of being a pessimist. He certainly pleads guilty to the accusation of not prescribing in the former type of case, and would emphasize the necessity for a rather more conservative use of glasses as a true therapeutic agent, and not the routine ordering largely to satisfy a form of community hysteria so often manifested. Undoubtedly we have all observed many instances in which a child is ordered glasses, and immediately others of the same family or community come seeking them, and in the vast majority of cases securing what they ask, entirely disregarding the real needs. Those of us who visit orphanages and places where numbers of children are cared for certainly see striking examples. The present system of school inspection brings to the oculist a great many children referred by the school physician. Particular attention is directed to those from the rural districts where the system has recently extended, but has not had time to fully mature.

The school physician's findings and recommendations certainly are not to be taken as final, for it is quite manifest that he is not in a position to determine accurately the static refraction of the eyes. His recommendations should be accepted purely as a suggestion that the child receive a more complete examination, with the view that if the degree and character of the refraction and symptoms warrant correcting lenses, they may be ordered. Otherwise a frank statement to the effect that they are unnecessary should be made to the parents.

Undoubtedly the children are sent by the school physician in good faith, and this is not to be taken as a reflection upon his ability to determine the real needs of the little patients. Therefore it is highly desirable that a cycloplegic be instilled and the static refraction accurately determined in each case.

The routine methods through which so many of these children go, of being examined, medicine ordered, and glasses prescribed, largely urged and abetted simply because they are referred by the inspectors, seem especially pernicious and an abuse of the confidence placed in the oculist by parents. Certain degrees of ametropia may be uncovered in practically every patient's eyes. It is also not very difficult to elicit many asthenopic symptoms, par-

*Read at the May meeting of the Willis Hospital Ophthalmic Society.

ticularly from an impressionable child. Regulated diet and a dose of calomel clear many of these cases. Therefore it requires a well ordered judgment to sift the true from the false information.

In private practice there is perhaps in certain instances a commercial aspect; as one patient put it, "the idea of paying for nothing," or in other words, the patient comes with a preconceived notion of wanting glasses. An explanation setting forth the necessity of remunerating for time and experience involved in making a complete examination, which is not dependent upon whether glasses are prescribed or not, usually clears the situation.

It has always been the writer's personal practice to refuse to order glasses when in his judgment the errors were low and the true subjective symptoms when carefully inquired into, practically nil. Most patients have appreciated this advice; occasionally, however, some lead to embarrassing situations. To illustrate:

A child, aged nine years, with a refraction, under atropine, of O₂+S 0.50, no glasses were ordered. The child returned in three months, again demanding glasses. Thinking possibly an error had occurred during the first examination, a subsequent test was made with the same result and a reiteration of the former advice regarding the uselessness of ordering such a lens. Nine months to a year later the child returned (in regard to other matters) wearing a pair of +S 0.50 lenses. The mother explained that she knew her daughter needed glasses, so she took her to another oculist (not optician), who very graciously told her (knowing her to be in very modest circumstances) that he would not charge her for treatment, but only the expense of glasses, or \$5.50! They had the cheapest kind of gold filled frames. This is obviously an extreme case, but it clearly emphasizes the necessity for less of the commercial spirit and more real professional integrity. It is the office of the physician to instruct and guide the uninformed. What this child really needed was \$5.50 worth of nutritious food and not a foolish pair of glasses. The parent knew no better and really believed she acted for the best interest of her offspring.

We have all undoubtedly observed many instances in which incorrect refraction has been used with asserted comfort. To illustrate: A patient was wearing low minus lenses sold to the patient by a so called "eye sight specialist"—an examination free type of optician—whereas in reality the true condition present was a low hyperopia. Yet these patients will boast of complete comfort and the absurdity in the use of a cycloplegic, etc. This seems to the writer to indicate, in a measure at least, the futility of indiscriminate ordering for low grade hyperopic errors. For here are cases having low grade hyperopia, increasing the same by wearing myopic lenses and still asserting comfort. In psychology lies the only hope of an explanation. It reminds the writer of a shrewd colored former maid in his employ, whose refraction proved to be +S 0.75. It was suggested that glasses were unnecessary and a needless expense. The maid insisted, and when pressed for a reason, explained that the personal adornment while attending church

or entertainment would be most satisfying. Regarding the expense, it would prove a very profitable investment, by virtue of the fact that they could be easily rented to her friends at ten cents an evening whenever social aspirations seized them.

The oculist has been accused of committing, either in part or in whole, some fifty-seven varieties of ophthalmic blunders. The writer, however, wishes to caution against committing the fifty-eighth of being overenthusiastic in prescribing glasses for the cure of appendicitis, ingrowing toe nails, corns, etc. The use of the foregoing quality of lenses has its limitations. It is also well to remember that the amplitude of accommodation of a child at ten years is fourteen diopters. The hyperopic oculist cannot fail to theorize on the possibility of his professional judgment being brought into question. He will endeavor to estimate just when a reaction from the present high wave of hysterical popularity will set in.

We all know of many instances where the medical profession has become hysterical over some new therapeutic agent, only to see it gathered to its fathers and go the way of many of its predecessors. Sane judgment and glasses are valuable therapeutic agents, having a definite and permanent position in our armamentarium. The exercise of the former in the application of the latter to the *needs* of our patients and not their wants, seems to the writer to be the proper spirit.

256 SOUTH FIFTEENTH STREET.

MEATOTOMY.

An Improved Technic for the Operation.

By EDGAR G. BALLENGER, M. D.,
Atlanta,
AND OMAR F. ELDER, M. D.,
Atlanta.

Painful urination after meatotomy and the necessity for subsequent instrumentation to prevent the cut surfaces from growing together, may be prevented by cauterizing the incised area with a saturated solution of nitrate of silver in concentrated carbolic acid.

For the past year we have used this method when meatotomy was done, and have found it a distinct improvement in the technic. The penis should be thoroughly cleansed. A few crystals or a tablet of cocaine is deposited within the meatus and allowed to remain there five minutes, and a rubber band is wrapped around it so as to prevent hemorrhage. A straight, blunt pointed bistoury is used to incise the meatus to the desired extent. The cut surfaces are dried with sterile gauze and then cauterized with the saturated solution of nitrate of silver in concentrated carbolic acid. The application should be made carefully so as to avoid smearing the solution in the urethra or on the penis. The excess is wiped away, then a similar application is made with Monsell's solution. While it is still wet with this solution, the rubber band is removed and the part watched for a few minutes to see if there is any hemorrhage. In case there is, it may be

checked by again applying the Monsell's solution. No dressing or after treatment is required. The chief point to bear in mind is that the bleeding should be stopped before using the silver carbolic solution.

The extent of the subsequent contraction is less than that seen after the usual operation, but should be considered when making the incision, which should be two sizes larger than that desired. We wish to warn against the extensive incisions sometimes made, as we feel they are worse than useless.

A CASE OF APOPLECTIC MALARIA.

BY BERNARD KAUFMAN, M. D.,
Maryville, Cal.

The following case is probably of some interest from two points of view: First, it seems to prove the existence of this type of malaria notwithstanding the fact that several good authorities on this subject deny its existence; second, it shows the dangers of hypodermic medication with quinine unless in a dilute state.

CASE. E. G., aged fourteen years, was in apparently good health up to the time of attack. He had attended school the previous day, and had not complained of feeling unwell. He had had no headaches and no fever, nor in fact any of the prodromal symptoms of malaria previously. Several years before he had had an attack, which from the history given by the parents, was evidently of the tertian type. On the morning of July 20, 1910, he awakened at 7 a. m. and, calling his mother, asked for a piece of bread and butter. This was given. When the mother returned to the room to awaken him again for school she found him apparently asleep, but her attempts to arouse him failed. I was called at 9 a. m. when the foregoing history was learned. A smear of blood was taken from his ear, and later at my laboratory, estivo-autumnal parasites were found in the slide. The temperature per rectum was 102° F., pulse 120 and full and bounding, with stertorous breathing. A smart smack on the face at this time would cause him merely to turn his head to the other side. On calling again at 11 a. m. I found him in a still more comatose condition, so that now a similar smack on the face brought forth no movement at all. The temperature per rectum was now 104° F. He was removed to the hospital, and one hour later the temperature was 105° F. per rectum.

Hypodermic injections of quinine hydrochloride in ten grain doses were resorted to. The skin was sterilized and the solution of quinine was also made sterile. The important point is that the quinine was dissolved in about forty minims of water. This was injected subcutaneously in various parts of the body, as the accompanying photographs show. By midnight the temperature, in spite of ice packs, was 107° F. per rectum with no signs of abatement of the comatose condition. From this time, however, the temperature gradually fell, till, next day, at 10 a. m., it was 99° F., and the patient could be roused to answer his name. By evening he was perfectly rational again with still no rise in temperature.

At the sites of injections of the quinine hydrochloride whitish circular areas developed which were hardened and anesthetic and with no marginal areas of inflammation. These persisted for a few days. Then a line of separation became noticeable and gradually became more marked. During this time there had been no recurrence of high tempera-

ture, and the areas were becoming separated from their bases until they were ultimately shed, leaving scars in their places. One of them on the thigh became infected and needed a counteropening to drain, but soon cleared up.

The interval elapsing between the time when the mother gave the boy the bread and butter and when she found him unconscious was barely an hour. How soon after she saw him at 7 a. m. this condition developed, is a mystery; but it certainly seems a true case of the apoplectic type of pernicious malaria. Lavarán (1) and Cardamatis (2) doubt the occurrence of this form, while others have reported similar cases falling under this classification, including Ewing, Morris (3), and Davidson (4).

The results of the hypodermic medication serve to emphasize the need of greater dilution than that used in this particular case. We are usually so intent on the details of asepsis that other equally im-



Fig.—Kaufman's case, showing the effect of too concentrated solution of quinine hydrochloride as hypodermic injection.

portant factors are apt to escape our minds. Shoemaker (5), Tyson (6), Craig (7), and Manson (8) all warn against the bad results obtained from the hypodermic injections of quinine, and some of them have given up this mode of medication on account of the frequency of abscess formation, e. g., Shoemaker and Tyson. Deaderick (9), however, asserts that if the solution of quinine is dilute this method of administration is perfectly safe, and suggests the following formula as the most suitable: Quinine hydrochloride, fifteen grains; water, two and a half drachms. In this dilution he says that the intramuscular injections can be given with perfect safety.

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Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXX.—How do you treat subacute and chronic laryngitis? (Closed January 15th.)

CXXXI.—How do you treat psoriasis, and with what success? (Answers due not later than February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXIX has been awarded to Dr. Ben N. Wade, of Portland, Oregon, whose article appears below.

PRIZE QUESTION CXXIX.

THE MANAGEMENT OF CHRONIC ULCERS OF THE LEG.

BY BEN N. WADE, M. D.,
Portland, Oregon.

In the treatment of this condition, the etiological factor or factors should be sought and corrected, for instance, uncleanness, varicose veins, syphilis, or an occupation in which the patient is required to stand long hours should be changed.

Personal hygiene plays an important rôle in the treatment of this condition. The patient should be clean of body, as often filth is the very cause of the ulcer. The bowels should be kept open, and, if debilitated, the patient should receive a tonic, such as the official iron, quinine, and strychnine. Some authorities give potassium iodide in this condition, whether the ulcer be of syphilitic origin or not.

In all cases, if possible, it is best to place the patient in bed and keep the affected leg elevated.

The nonoperative treatment consists in the application of various antiseptic powders and lotions, such as thymol iodide or two per cent. boric acid solution. Balsam of Peru is valuable, not only for its antiseptic action, but also for its stimulating action on granulation tissue. Tincture of iodine applied once or twice a week also acts in this manner. Scarlet red ointment is also valuable for its stimulating effect on the granulation tissue, and sometimes causes a rapid healing of the ulcer.

An adhesive strap gives good results in some cases, or an elastic bandage or a silk bandage applied from below upward are of great use in cases where the patient is unable to stay in bed, especially in cases of varicose ulcers. Unna's casts are used with success in many cases. Bier's hyperemia

sometimes hastens healing by increasing the local arterial blood supply. This is not applicable to all forms of leg ulcer, however, as in some cases of varicose ulcer, profuse hemorrhage results from the local hyperemia bursting the weakened veins in the ulcer.

Treatment of the complications of chronic ulcer is very important, as this alone will sometimes effect a cure. An almost invariable accompanying lesion is a chronic, squamous eczema which should be treated with some nonirritating lotion or ointment, as zinc oxide ointment. Inflammation around the ulcer (cellulitis) is best treated by elevation of the limb and hot boric acid applications.

Operative treatment alone effects a cure in some cases, as the ulcer will no more than become healed by some form of medical treatment than some slight trauma will immediately start the formation of another ulcer. If varicose veins are the cause, they should be removed, and in this operation it is always advisable to remove a portion of the internal saphenous vein about the middle third of the thigh (Trendelenburg's operation), an elliptical incision made around the ulcer about one inch from its border, and carried down through the aponeurosis is an excellent procedure and often a speedy cure follows. This was first advocated by Sir John Gay, of London. Bleeding from the wound is easily controlled by pressure and the skin sutures. Curing of the sluggish margin of the ulcer and also of sluggish granulation tissue, followed by Thiersch grafts are followed by excellent results, especially in large ulcers. Covering the granulating surface with a neighboring skin flap does not give uniform good results as do the skin grafts.

Dr. Frank C. Carlton, of Salem, Mass., writes:

My treatment of all ulcers, so far as local applications are concerned, is the same; and the methods used have certain principles back of them, which, when carried out, have a marked effect upon the healing process. During all the time I am treating a case, I keep in mind the fact that wounds tend to heal best when kept sterilized and dry. I apply ninety per cent. alcohol to the ulcer, by soaking sterile gauze in the alcohol, and then carefully wash the whole surface of the lesion, taking special care to clean the margins thoroughly. I also wash the entire surface of the skin on the leg, around the region of the ulcer. The patient will complain a little of the burning sensation for a while, but this does not last long. The alcohol, in my opinion, does four things:

1. It sterilizes the surface of the ulcer and skin;
2. it stimulates tissues, and starts them growing;
3. it absorbs water from the tissues, and helps make the surface dry (I apply no watery solution of any kind);
4. it prepares the surface of the ulcer for the ointment used, which is as follows:

R	Acidi borici, ...	3ii
	Adipis lane, }	
	Petrolati, }	3i
	M. ft. unguentum.	

This ointment is spread liberally over a piece of sterile gauze and placed over the ulcer, and a firm bandage applied, extending from the foot to the knee, and left for twenty-four hours, at the end of

which time the bandage and dressing are found soaked with serum and some blood; the wool fat, having an affinity for water, draws fluid from the tissues. The dressing is removed and the ulcer washed again with alcohol, the whole leg given a massage with alcohol and a stiff scrubbing brush. This helps to drive the blood out of the engorged veins, stimulates the nerves, and aids in the healing of the ulcer. The ointment is again applied, and remains twenty-four hours, as before. After a few days, the base and edges of the ulcer will become soft, so that all the old débris of coagulated serum and dead cells can be scraped off with a small knife or picked off with small pincers, so that a clean, granulating surface is obtained. It is also very important to cleanse the edges of the skin around the margins of the ulcer, so as to allow the new epithelial cells to grow, thus covering the surface of the ulcerated area. I use the wool fat ointment for two or three weeks, and then I begin with a more stimulating ointment, using a five to ten per cent.



FIG.—Chronic ulcer of the leg treated by Dr. Frank C. Carlton.

thymol iodide ointment, made up with cold cream as a base. I continue the same treatment with the alcohol, and apply the new ointment on gauze dressing, after washing the ulcer. Sometimes the granulations form faster than the epithelium, in which case I burn them with a caustic pencil of silver nitrate.

To sum up my treatment in a few words: 1. I aim to keep the ulcerated area sterile. 2. I put on an ointment that does not kill growing cells, and one that helps to withdraw serum from the tissues, so that new serum can be brought in and feed the growing tissues. 3. I use massage, for the purpose of stimulation.

For syphilitic ulcers the same ointments are used, and the same care taken as has been described in connection with various ulcers; but in addition, I give a saturated solution of potassium iodide, five drops after meals, and increase daily one drop until forty drops is reached, or until the patient com-

mences to have symptoms of iodism, when I stop the medicine.

In all my cases I keep the patient's bowels free with a laxative pill. I have found, in the cases I have treated, that even the worst ulcers can be permanently cured in from three to four months, provided the patient has not diabetes or Bright's disease, which conditions may be back of the local trouble. From what I have seen of cases treated by other physicians, I believe that personal interest in the case counts for much.

(To be continued.)

Therapeutical Notes.

Potassium Salts in Carcinoma.—Dr. F. W. Forbes Ross, of London, in his book on *Cancer* (London, 1912), to which we refer editorially on page 248, says: "All patients with cancer should take sixty grains or more of potassium bicarbonate every morning, in warm water (with or without effervescence), on an empty stomach. . . ." The following is a useful prescription:

℞ Potassium bicarbonate (citrate) 3iij;
Potassium hypophosphite, ...3iij;
Iron and ammonium citrate, ...3ss;
Solution of bismuth and ammonium citrate, . . .3iij;
Tincture of nux vomica, ...3ss to 5j;
Tincture of strophanthus, ...3j to 5ij;
Simple syrup, ...3iss;
Water, ...5vj.

Sig.: One twelfth part thrice daily in water.

Strophantus causes hyperperistalsis of the bowel, which may be controlled by opium.

Treatment of Chronic Rhinitis.—*Paris médical* for September 7, 1912, suggests the following ointment for use in chronic nasal affections:

℞ Acidi borici, ...5 grammes;
Mentholi, ...0.25 gramme;
Adipis lanæ hydrosi, ... }
Petrolati, ... } āā 10 grammes.

M. ft. unguentum.

The boric acid in this preparation should be finely powdered and strained.

For inhalation a teaspoonful of the following mixture may be placed in boiling water:

℞ Eucalyptolis, ...10 grammes;
Mentholi, ...5 grammes;
Resorciniolis, ...20 grammes;
Guaiacolis, ...25 grammes.
Misce.

Artificial Lymphocytosis.—Gerald B. Webb, in the *Johns Hopkins Hospital Bulletin* for August, 1912, states that he has found that a lymphocytosis can be caused by inducing constant hyperemia of the long bones, and that such lymphocytosis is associated with a certain degree of symptomatic improvement in tuberculous cases. The patients had applied to their upper arms, day and night, a garter elastic, one inch wide, which was just tight enough to leave an indentation in the skin after removal. They suffered no discomfort; nor did the arms visibly swell. About two weeks were required for the greatest results to appear. After

this time the patients' sputum decreased, especially the thick, yellow portion. In one patient who estimated that she expectorated her body weight in eight months the amount was reduced to one quarter ounce daily. In some patients after several weeks' treatment both temperature and pulse dropped. Lymphocytes appeared in the sputum in large numbers, a few containing fragmented tubercle bacilli, and in some patients the number of bacilli in the sputum appeared to diminish.

The artificial lymphocytosis brings with it some increase in the polymorphonuclear leucocytes, and was found of value in certain other suppurative conditions, e. g., ear affections.

Treatment of Hydrophobia.—R. Tonin, in *Il Policlinico* for July 14, 1912, reports a case of rabies in a girl, aged thirteen years, in which, the customary sedative drugs proving ineffective and the prognosis being apparently hopeless, an intravenous injection of 0.3 gramme of salvarsan was administered. Eight hours later pharyngeal and laryngeal spasm had entirely disappeared, slight dysphagia alone remaining. On the following day general hyperesthesia was likewise gone. That the affection present was true hydrophobia was shown by the later developments, an ascending myelitis, which ultimately involved the medulla and brain proper, and was manifested in formication, muscular paresis, dyspnea, circulatory disturbance, violent headache, and facial and abducens paralysis. Under tepid baths, potassium iodide, and stimulants the child recovered. The effect of the arsenobenzol is believed by the author to have been a destruction of the living virus of the disease, without any influence on the toxines already elaborated, which remained to produce the secondary paralytic symptoms.

Treatment of Pruritus vulvæ.—J. Howell Evans, in the *Clinical Journal* for June 26, 1912, recommends the following ointments in this affection:

I.

R Bismuthi subcarbonatis, ...ãã grs. x;
Zinci oxidi, ... }
Adipis lanæ hydrosi, ...q. s. ad 3i.
M. ft. unguentum.

II.

R Unguenti picis liquidæ, ...ãã 3ii.
Unguenti belladonnæ, ... }
Tincturæ aconiti, ...3ss;
Unguenti aquæ rosæ, ...q. s. ad 3i.
M.

For application to the vaginal wall, the author advises a paste composed of bismuth subcarbonate and glycerin, or a solution of silver nitrate, ten grains to the ounce. In conjunction with all local applications, a detail of considerable importance is the employment, not only of a diaper, but of a piece of gauze or soft tissue to separate the labia.

The x rays are useful in pruritus vulvæ, but when employed in severe cases to the degree necessary to give relief cause considerable depilation. Radium, on the other hand, has given the author better results than any other agent. He has found it invariably successful, and urges its use in all cases where the simpler remedies have failed.

Intense pruritus vulvæ has been cured by the use of the constant current, the anode being applied to

the vulva and the cathode to the various other parts affected.

Operative measures include the application of caustics or the cautery to an erosion of the cervix; curettage, if endometritis exists; divulsion, under anesthesia, of the vaginal constrictors, with the introduction of Sims's glass tube or a thick gauze plug; removal of Bartholin's glands.

Treatment of Aphthous Stomatitis.—R. Oppenheim, in *Progrès médical* for August 31, 1912, advises that in mild forms of aphthous stomatitis, with but few lesions in the mouth and in the absence of general febrile reaction, the mouth be washed three or four times a day with the following solution:

R Sodii bicarbonatis, ...ãã 10 grammes;
Sodii boratis, ... }
Aquæ destillatæ, ...500 grammes.
M. ft. solutio.

The ulcerations should be touched morning and evening with cotton dipped in:

R Sodii bicarbonatis, ...5 grammes;
Aquæ hydrogenii dioxidi, ... }
Aquæ destillatæ, ...ãã 200 grammes.
M. ft. solutio.

Or, if pain is considerable, with the following collutory:

R Cocainæ hydrochloridi, ...0.2 gramme;
Sodii boratis, ...2 grammes;
Glycerini, ... }
Aquæ destillatæ, ...ãã 15 grammes.
M. ft. solutio.

Where the ulcerations persist notwithstanding these measures, cauterization with silver nitrate should be practised.

In the more serious form of the affection, with confluent lesions and constitutional reaction, and which frequently results from transmission of the aphthous fever of cattle through the milk, special prophylactic measures should be carried out, such as boiling the milk, scalding the toilet and table utensils employed by the patient, and washing the mouth with vichy water each time the milk is taken. Cachets each containing 0.25 gramme of quinine hydrochloride and 0.15 gramme of acetphenetidine should be administered twice daily, a saline purge given at the outset of the disease, and intestinal antiseptics prescribed thereafter. The mouth and pharynx should be washed out every three hours with the following solution:

R Sodii salicylatis, ...20 grammes;
Aquæ destillatæ, ...100 grammes.
M. ft. solutio.

and the ulcers subsequently treated with:

R Cocainæ hydrochloridi, ...0.2 gramme;
Sodii salicylatis, ...10 grammes;
Aquæ destillatæ, ...50 grammes.
M. ft. solutio.

with a twenty per cent. solution of lactic acid in distilled water, or with:

R Sodii chloratis, ...ãã 4 grammes;
Sodii boratis, ... }
Glycerini, ... }
Aquæ destillatæ, ...ãã 25 grammes.
M. ft. solutio.

In the later stages of the condition ulcers that have as yet shown no tendency to heal should be touched with silver nitrate.

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FEDERAL QUARANTINE FOR NEW YORK.

The time seems ripe to reopen the question of transferring the quarantine station for the port of New York to the Federal government. The quarantine budget for 1912 was \$335,990; Doctor O'Connell has just asked for an appropriation of \$2,000,000 to enlarge and reconstruct the quarantine station. In few ways could Governor Sulzer better fulfil the promises of his attitude favoring an economical administration than by turning the New York quarantine over to the central government. This vast sum would be saved at once to the State, as well as the costly upkeep of the station from year to year, and politics would be eliminated absolutely. The periodic appointment of a new and inexperienced quarantine officer arouses apprehension with each new administration. We are in no spirit to criticise the present quarantine management; the question is far broader than that.

Physicians and well informed laymen will hail with enthusiasm the report on Quarantine in the Maritime Cities of the United States by the Public Health, Hospitals, and Budget Committee of the New York Academy of Medicine. The report contains an admirable résumé of the history and development of the idea of quarantine in Europe and in America, and an abstract of the organization and work of the United States Public Health Ser-

vice, which operates forty-eight quarantine stations on the Pacific, Gulf, and Atlantic seaboard, and in Hawaii, Alaska, the Canal Zone, Porto Rico, and the Philippines. This service also conducts the medical examination of all emigrants, a most important quarantine measure.

The Federal Public Health Service is peculiarly fitted by long training and practice for quarantine administration; the statement that it lacks the requisite experience and ability to handle the New York quarantine is abundantly refuted by the history of the service itself and its magnificent work in many epidemics, such as yellow fever in New Orleans and plague in San Francisco, as well as by its efficient and successful conduct of its present great system of home and colonial quarantine.

Quarantine is logically a function of the National government. Exclusion of contagious diseases from any port is not a local matter; it affects the entire country most vitally. New York is the largest port in the United States, hence the country as a whole has the highest concern in the matter of its quarantine arrangements. The freight and passenger traffic of the port terminates in relatively small proportion in New York. It spreads rather through the entire country, which, therefore, has a legitimate right to demand that New York shall not be provincial, that the administration of this important function shall rest in the hands of the National government.

It is now a well established principle of law that quarantine rules constitute in effect regulations of commerce, and are therefore national in their scope and pertain to the Federal authority. This undisputed power of the Federal government to regulate maritime quarantine is shown by William E. Walz, dean of the Law School of the University of Maine (Federal Regulations of Quarantine, Michigan Law Rev., IV, 3, 1906), by numerous quotations from court decisions. He shows that in case of conflict between State and Federal laws on this subject, the State law must give way before the Federal, because of the higher power vested by the constitution. William Williams, commissioner of immigration for the port of New York, says (The Question of State or Federal Quarantine, NEW YORK MEDICAL JOURNAL, February 17, 1912) that the Federal government should perform those functions of government which are national in character and that from every standpoint the management of the quarantine of New York is such.

In contrast with the unblemished record and really magnificent history of the Public Health Service, the administration of the New York quarantine by New York has presented many humiliating and dangerous situations in the last fifty years.

This was illustrated in 1892 when the ineffectual efforts of the New York quarantine to exclude cholera from this port necessitated an eleventh hour rescue by President Harrison, who ordered cholera ships to be held twenty days in quarantine and sent Federal officers to assist those of the State. A very important advantage of the National government is its ability to command expert cooperation; the Public Health Service officers scattered all over the world, and the National consular representatives supply complete and accurate data as to the prevalence and characteristics of disease in foreign countries. The army, navy, revenue cutter service, custom service, and many others are at the call of the Federal government. No such resources in emergency are available for the State. Eliminate the patronage, direct and indirect, of the port quarantine, and little remains to keep it a State institution. Let the National government take charge and the sooner it can be accomplished the better for New York and the entire nation.

THE WELFARE OF EMPLOYEES.

Our readers are familiar through wide publication in the daily press with the plan of the associated telephone, Western Union telegraph, and Western electrical interests to provide, as an addition to their pension system for employees, a comprehensive scheme of personal hygiene and preventive medicine, whereby careful supervision of the force of nearly 175,000 employees will be maintained with the idea of instantly stamping out infection and eventually establishing efficient prophylaxis. It has naturally occurred to some physicians that this might tend to establish a medical bureaucracy and so eliminate the individual practitioner. An interview with the newly appointed medical director, Dr. Alvah H. Doty, who needs no introduction to readers of the JOURNAL, enables us to state positively that not only will the preliminaries of his plan not interfere in the least with the practice of any physician, but as it works out, the results will be to enhance first the prospects of the practitioner himself and ultimately those of the profession at large.

Briefly stated, the plan of Doctor Doty compels a report by a properly qualified physician concerning any employee who is absent for forty-eight hours from his office; the physician may be in private practice and need not be connected with the company. For this report he will get a cash fee; subsequently, however, he must look to the patient for remuneration. The company is not going to pay for treatment, but will confine its energies to preventing illness. Office managers will be trained to keep an eye on employees and to report sus-

picious signs of headache, sore throat, skin eruption, etc.; cultures will be taken if required and a report telegraphed to headquarters. The company will satisfy itself that the patient's medical adviser is competent, i. e., that he bears a good reputation. The most modern sanitary appliances will be installed in every office, and employees will be taught to use them by lectures, booklets, and other means; they will also be urged, by example usually, to bathe, keep their hands clean, and maintain regular habits. It may be noted here that venereal diseases will be treated seriously, not humorously nor vengefully, and with care to safeguard those exposed.

There will be district medical inspectors, men of high local reputation, to see that the educational and prophylactic work is properly carried out, and it is hoped that willing cooperation will be offered by local boards of health and hospitals in matters of diagnosis and treatment. The more intelligent employees will readily comprehend the value of the plan and will soon educate the others to see that neglect or "soldiering" results merely in robbery of themselves by what are actually forged drafts upon the pension fund, a thing that will obviously not be tolerated once the plan is fully understood.

When one remembers that there is not a hamlet of half a dozen cottages in the country without a telegraph or telephone office, the opportunities for speedy communication and its immense value are immediately apparent. The imagination kindles at the prospect opened up in the future to the medical profession when similar plans are made, as they surely will be, by other corporations. A demand will ensue for thoroughly trained sanitary experts to engage in this work of education and prophylaxis at liberal salaries, while their labors need not necessarily exclude private practice, mostly surgical probably, since the infections should tend rapidly to disappear.

The consequences of this plan of welfare, political, economic, sanitary, and professional, are momentous. These 175,000 educated employees will influence in their homes at least one million people, to their advantage and that of scientific medicine. The scheme reflects the highest credit on the intelligence of the heads of the American Telephone and Telegraph Company who devised it and chose to put it into operation a tactful, widely known, and thoroughly competent medical scientist.

CANCER.

Hardly a month passes without an article in the medical literature on cancer, either discussing its etiology or giving points on treatment. In America we have found lately advocated cataphoresis with a forty per cent. solution of cocaine; in Germany

an old discarded remedy which had been used in England and the United States was revived with the approval of one of the leading cancer specialists. Among these, Dr. F. W. Forbes Ross, of London, England, has held a conspicuous place for the last decade; he advocates the treatment of cancer with potassium salts. Based upon his papers he has published a book on the problems of the genesis and treatment of cancer. After speaking of the poor results obtained from surgical interference and the empirical use of x rays and radium—"the use of radium and x rays without a proper balance of the mineral salts of the body is like using a sewing machine on cloth to make a garment and forgetting to use thread"—he advances the hypothesis that cancer is due to a want of balance in particular mineral salts in the body which disturbance will lead to the disorderly and malignant growth of epithelial cells, epiblastic as well as hypoblastic. He thus divides cancer into a malignant growth of the epithelial cells (cancer proper or carcinoma) and a malignant disease of the mesoblastic tissues (sarcoma). In explanation of his hypothesis he reasons as follows: Potassium is the salt of the cells and nuclei of all vegetable and animal tissue throughout the universe under conditions of health. Careful research has shown that the disturbance in epithelial cell growth, known as epithelioma, is entirely a matter of the disturbance of the nuclear function of epithelial and other cells in the body of man. It has been proved that this disturbance in the nucleus renders certain bodies, the chromosomes, deficient in number. Ross has observed that the potassium salts of the body during cancer become more and more diminished and scanty. We thus find that the red blood corpuscles in the course of a case of cancer suffer by reduction in number from five million to the c. mm. to only one million to the c. mm. Our investigator thinks that the potassium salts in the tissues and blood are not used up and removed during cancer to free the body of a harmful material, but are used as fighting material against the disease. Therefore, concludes the author, we should support Nature in her fight by introducing potassium salts into the attacked body. He closes his book with the statement that "assimilable salts of potassium, when administered in a bona fide case of cancer, will be found to benefit the patient in an astonishing manner, and will never cause the least harm or injury, even to the most feeble and exhausted sufferer."

We doubt very much that Doctor Ross's theory will find many followers or that the cures which he asserts he has succeeded in effecting can be easily reproduced by his colleagues.

THE SCIENTIFIC PRACTICE OF CHIROPODY.

The State of New York has taken steps to improve conditions in the practice of chiroprody. As the result of an amendment to the Public Health Act, which became effective September 1, 1912, the law now provides that the State Board of Medical Examiners shall determine the fitness of future chiroprodists and that a candidate for license must be graduated from a school of chiroprody, registered by the regents as maintaining a proper standard both as to academic preparation and scientific fitness. Under this new regulation, the New York School of Chiroprody, in which the proper standard will be maintained has just been established. All the members of the faculty are physicians in good standing, who will be presided over by the retiring secretary of the New York State Board of Medical Examiners, Dr. Maurice J. Lewi. This new departure is bound to render the public a great service by placing the treatment of even the minor diseases of the feet on scientific and therefore safer lines.

THE PUBLIC HEALTH COMMISSION.

In our news columns will be found a plan for the reorganization of the present method of public health administration in New York State. In general it will be seen that this plan admirably meets the requirements enumerated in the editorial columns of this JOURNAL last week (page 194), and combines local representation with efficient centralization. The idea of having a representative body like the State Health Session endowed with wide powers seems particularly sound and certainly in harmony with the spirit of our institutions. The details of this plan have not yet been made public, so it is impossible to judge them as a whole; the outline presented, however, seems to be eminently practicable and designed to bring about efficient public health administration throughout the entire State.

EXTENSION OF GOVERNMENT MEDICAL SUPERVISION.

Surgeon L. L. Lumsden, in *Public Health Reports No. 104*, gives details concerning an outbreak of gastroenteritis and typhoid fever which was traced beyond all possible doubt to the water supplied on an excursion steamer plying between Davenport, Ia., and Albany, Ill. The writer recommends, therefore, that the water supplies used on river steamers and the sanitary conditions prevailing thereon be made the subject of adequate official inspection, by members of the Public Health Service when traffic is interstate, by local authorities when it is confined within the boundaries of one State; also that the sources of water supply be certified as being safe by competent authorities. We can see here the inevitable extension of official medicine along perfectly justifiable lines; no number of ununited private practitioners could possibly meet such a condition as that set forth in this report.

EXTRACT OF HUMAN PROSTATE GLAND.

Battez and L. Boulet, according to *Semaine médicale* for January 15, 1913, reported at a recent session of the Société de biologie that they had had a fortunate opportunity to corroborate their experiments with extract of canine prostate gland as causing, on intravenous injection, lively contractions of the bladder. Half an hour after his execution they were able to secure a perfectly healthy gland from a criminal, aged twenty years, and to make an extract therefrom. They found that this human extract had the same effect on the bladder as the canine preparation and also possessed marked hypotensive action on arterial pressure.

Medical Law.

VII. RECOVERY OF COMPENSATION.

When a physician is reduced to the necessity of suing a patient to recover a fee, the situation usually should be considered by him in a serious light, but it appears from the opinion in the case of *Hall vs. Mooring*, 76 *Southeastern Reports*, 759, that the situation is sometimes otherwise considered by the court. The opinion of Mr. Justice Pottle in this case seems worth reproducing and is printed in full.

This was a contest between two members of the gentler sex. The plaintiff was a practitioner of the art or science of osteopathy, and the defendant either needed, or thought she did (which is the same thing), the services of the plaintiff. Several visits were made at \$3.10 a visit, the ten cents being added for street car fare, and the whole bill amounted to \$27.90. The defendant says she paid all she really owed, and that the plaintiff charged her for a number of social calls, during the course of which the defendant was importuned to continue the treatment. The defendant says that she declined to do so, and that the services rendered by the doctor gave her no relief, and were so unsatisfactory that she was forced to resort to a physician of the regular school, who administered pills and mixtures in the good old fashioned way. On the issues of fact the plaintiff outswore the defendant, or at least the jury in the justice's court thought she did, and the judge of the superior court refused to interfere. This is the end of the law so far as this branch of the case is concerned. It would never do to hold that a doctor is entitled to recover only where he cures the patient. If we did, the members of this learned profession might hesitate to respond in extreme cases where the chances were against them. So far as we are concerned, the doctors may continue to bury their mistakes and recover for their services as they have always done. If we were dealing with lawyers, the rule might be different; but sufficient unto the day is the evil thereof. The defendant says that she ought not to pay the extra ten cents a visit because the doctor usually walked. However, the plaintiff testified that the charge was usual and reasonable. If so, "she had a right" to walk and save the ten cents.

It appears from the record that the trial waxed warm, and during the testimony of the defendant, the plaintiff became excited and exclaimed, "Liar,

liar, liar," and, while the defendant's counsel was endeavoring to persuade the jury to accept his client's theory of the case, the plaintiff did, at intervals, "yell out in court that the defendant was a liar and had lied." Complaint was made that this conduct of the plaintiff humiliated and embarrassed the defendant and prejudiced the jury against her, and that the verdict ought to be set aside because the magistrate failed to punish the plaintiff for contempt. Doubtless the conduct of the plaintiff overawed the chivalrous young justice and embarrassed him quite as much as it did the defendant, and we are not disposed to criticise too harshly his exhibition of judicial timidity. At all events, the failure of the magistrate to punish the contumelious plaintiff must be allowed to rest upon his judicial conscience. If we had any means of knowing that the plaintiff's conduct terrorized the jury and coerced the verdict in her favor, we would, in the interest of a fair and impartial trial, direct another hearing. But the jury doubtless felt secure under the protection of the bailiff and the sacred precincts of the courtroom, and, if they had returned a verdict adverse to the plaintiff, there was, no doubt, some rear door through which they might have dispersed and thus have escaped violence at the hands of a litigant outraged at the injustice which had been meted out to her. Viewing the matter from this safe distance, we are inclined to think that the unseemly conduct of the plaintiff would more likely have prejudiced her own cause than it did the defendant's.

There are other errors assigned in the petition for certiorari, but the magistrate in his answer seems to have effectually disposed of these. According to the answer, the appeal was entered in due time, and the defendant's demand for a bill of particulars was complied with. The amendment attaching the itemized statement was filed in court. This was sufficient service upon the defendant

News Items.

Harvey Lecture.—The postponed lecture by Major F. F. Russell on the Prevention of Typhoid Fever will take place on February 8, 1913, at the New York Academy of Medicine, at 8:30 p. m.

The Vanadium Chemical Company of Pittsburgh, Pa., announce that Dr. Francis M. Turner has resigned from the general managership of the company, the resignation to be effective February 1, 1913.

French Physicians Increase Their Fees.—The American consul stationed at Havre reports that as a result of increased cost of living in France, the physicians practising in Havre have decided to raise their fees, and the public has been notified accordingly through the press.

Hartford Medical Society.—At the annual meeting of this society, held on the evening of January 6th, the following officers were elected: President, Dr. Charles D. Alton; vice-president, Dr. Everett J. McKnight; secretary, Dr. John Carter Rowley; assistant secretary, Dr. Arthur H. Griswold; treasurer, Dr. Philip D. Bunce; librarian, Dr. Walter R. Steiner. Dr. Albert R. Keith is chairman of the press committee.

New York Neurological Society.—At the recent annual meeting of this society the following officers were elected: Dr. Smith Ely Jelliffe, president; Dr. E. G. Zabriskie, first vice-president; Dr. E. W. Scripture, second vice-president; Dr. J. Ramsay Hunt, corresponding secretary; Dr. C. E. Atwood, recording secretary; Dr. Charles L. Dana, Dr. M. Allen Starr, Dr. B. Sachs, Dr. Joseph Fraenkel, and Dr. R. F. Kennedy, councillors.

Atlantic County, N. J., Medical Society.—This society held its annual meeting in Atlantic City on January 10th, under the presidency of Dr. David Berner. Officers were elected as follows: President, Dr. Walt P. Conway; vice-president, Dr. S. Barbash; secretary and treasurer, Dr. Edward Guion. Two new members were received into the society, Dr. L. H. Dewley and Dr. O. D. Stickney.

The Guild of St. Luke's.—At the next meeting of this society, which will be held in the Catholic Club on Thursday evening, February 6th, at 8:30 o'clock, the subject for general discussion will be How Much of Eugenics is Scientific? and will be introduced by Dr. James J. Walsh. Gentlemen who are interested may obtain invitations to the meeting by addressing either Doctor Walsh, who is corresponding secretary of the guild, or Dr. Charles E. Namunack, president.

Medical Association of the Greater City of New York.—A special meeting of this association will be held under the direction of the chairman for the Borough of the Bronx, on Monday evening, February 3d, in the Bronx Masonic Temple. The paper of the evening will be read by Dr. William P. Healy on Fibromyoma Uteri, Occurrence, Complications, and the Necessity for Operation. A general discussion will follow, which will be opened by Dr. Howard C. Taylor.

Medical Society of Franklin County, Pa.—This society held its annual meeting on January 21st and elected the following officers for the year 1913: President, Dr. William C. Schultz, of Waynesboro; first vice-president, Dr. Benjamin F. Myers, of Chambersburg; second vice-president, Dr. M. Webster Stofer, of New Franklin; secretary, Dr. John J. Coffman, of Scotland, reelected; assistant secretary, Dr. Paul P. Allen, of Chambersburg; treasurer, Dr. Johnston McLanahan, of Chambersburg, reelected.

Physicians' Home Planned.—At a recent meeting of the Aid Association of the Philadelphia County Medical Society the advisability of establishing a home for destitute physicians and their wives was discussed. Much interest is being shown in the movement, and the widow of a physician has offered a residence in the suburbs of Philadelphia for the purpose. The committee appointed to consider the matter, consisting of Dr. Roland H. Curtin, Dr. S. D. Risley, Dr. Oscar H. Allis, Dr. James M. Anders, and Dr. Lewis H. Adler, will present a report at the February meeting of the society.

Federation of State Medical Boards.—The annual meeting of the Federation of State Medical Boards will be held in the Congress Hotel, Chicago, on February 25th. The topics selected for discussion are all of practical and vital interest to medical colleges, medical examining boards, and the profession at large, and all who are interested in securing the best results in medical education and legislation are invited to attend. Dr. Arthur B. Brown, of New Orleans, is president of the federation; Dr. George H. Matson, of Columbus, Ohio, is secretary-treasurer, and Dr. James A. Duncan, of Toledo, Ohio, is chairman of the executive committee.

Mount Sinai Hospital Extension.—The directors of Mount Sinai Hospital are planning to build a \$1,250,000 extension opposite the present hospital building on Fifth Avenue. Of the total amount needed \$650,000 has been raised already, and at the annual meeting of the directors, held on January 26th, Dr. Abraham Jacobi announced that a campaign would be started at once to raise the remainder. The new extension will add two hundred beds to Mount Sinai's equipment. There will be wards for children and women, and a laboratory for the study of diseases. The hospital treated 8,204 patients last year. Of these, 5,386 were free patients, and 1,070 pay patients.

A Department of Tropical Medicine at Harvard University.—Dr. Richard Pearce Strong has been appointed professor of tropical medicine at Harvard University, and will organize a department in the medical school to be devoted to a systematic study of tropical medicine and research work therein. The new department has been guaranteed sufficient funds for five years, and it is expected that a permanent endowment fund will be raised to carry on and extend the work. Doctor Strong is now professor of tropical medicine in the Philippine Medical School. He was a member of the International Plague Commission appointed in 1911 to investigate plague conditions in Manchuria.

Canandaigua Society of Physicians and Surgeons.—At the annual meeting of this society, held on the evening of January 9th, Dr. Alfred W. Armstrong was elected president, Dr. Harry C. Buell, vice-president, and Dr. Henry C. Burgess, reelected secretary and treasurer.

American Society for Physicians' Study Travels.—This society was organized in Philadelphia on Saturday, January 25th, and is the first medical organization of its kind in this country. It is modeled along the lines of the German Central Committee for Medical Study, members of which visited this country last fall. Its main object is to encourage physicians to study in foreign countries, and it is planned to send members abroad upon occasions of special interest or when work is being done where investigation would be helpful to American medicine. These trips will be in charge of the officers of the club. Dr. J. M. Anders, of Philadelphia, was elected president at Saturday's meeting and Dr. Albert Bernheim secretary. An executive committee of twenty-five members was also appointed, among the New York members being Dr. Theodore C. Janeway, Dr. Linsly R. Williams, and Dr. Richard Kovacks.

The De Roaldes Prize.—A prize consisting of a gold medal is offered by the American Laryngological Association for the best essay upon some subject relating to laryngology or rhinology, preference being given to essays offering new suggestions of practical value arising from original work. The competition is open to practitioners in regular standing of the United States and Canada who are not members of the American Laryngological Association. The essays must be typewritten in English, and placed in the hands of the secretary before May 1st. The author's name and address with the title of his paper must be enclosed in a sealed envelope which will be opened after the award has been made. The successful essay will be published in the *Transactions* of the association, but it may also be given to any other journal for publication. Harmon Smith, secretary, 44 West Forty-ninth Street, New York.

Cerebrospinal Meningitis.—The outbreak of cerebrospinal meningitis that has been in progress during the last six or eight weeks does not seem to be extending into new territory. From reports received by the Public Health Service it is known that localities in the States of Arkansas, Tennessee, Kentucky, and southern Illinois have been involved. If the disease has been epidemic in other States, the fact has not as yet been made known. Sporadic cases of cerebrospinal meningitis occur almost continually throughout the country. Only occasionally the disease becomes acutely epidemic, and, starting from one or more foci, has a tendency to spread over considerable territory. Last year the centre of the outbreak was in Texas, and the disease spread into Oklahoma and neighboring States. This year the centre of the epidemic has appeared to be in Arkansas, Tennessee, Kentucky, and southern Illinois. From the course the disease has taken it is expected that the present epidemic will soon be under control.

Medical Department of the New York State Library.—The medical reading room of the State Library, at Albany, N. Y., was opened to the public on January 15th, with about 12,000 books on its shelves available for consultation and lending. The library receives regularly between five and six hundred medical periodicals, both domestic and foreign, which are on file in the medical reading room. Attention is also directed to the fact that medical books may be borrowed from the State Library for two weeks with option of renewal for an equal time, by any licensed physician in the State, by full time instructors on the faculty of any medical college, members of the house staff of any hospital, registered and certified nurses, or any one engaged in medical work who offers suitable references and credentials. The library lends its books through local libraries or schools whenever possible. In the rare cases where there is no local library or school, loans are made direct on personal application or on a written order assuming full responsibility for books borrowed. All transportation charges are paid by the borrowing library or individual. Advance notice as to what books are desired for consultation or what subjects are to be studied will enable the librarian to get the books together and have them ready at a stated day and hour. Information will also be given as to books or articles on specific topics.

Industrial Hygiene Courses in Medical Colleges.—At the first annual meeting of the Efficiency Society, held in New York on January 27th and 28th, resolutions were adopted recommending courses in industrial hygiene in every medical and technical school in the United States. The subjects suggested include sanitary inspection, mechanical and clerical work and their physiological and psychological effects, prevention and treatment of accidents, disease and its prevention, fatigue and its causes, industrial legislation, the relation of the employer to the physician and the relation of the physician to the employee, the latter including the physical examination of the employee and his instruction; the relation of the physician to the State and municipality, including the reporting of work, accidents, and diseases, and the economic and social results already obtained in the prevention of accidents and disease.

The Control of Epidemics.—On account of the relation of epidemics to the hygienic and commercial welfare of the country, the Federal Public Health Service may assume responsibilities in respect to their control under the direction of the Secretary of the Treasury and the President. In the event of outbreaks of cholera, yellow fever, smallpox, plague, or typhus fever in any part of the United States, the President is also authorized to cause sanitary regulations to be issued and enforced to prevent their spread, and an epidemic fund of approximately half a million dollars is appropriated annually for expenditures of the Federal Public Health Service in suppressing epidemics of these diseases. It is under such authority that the epidemics of yellow fever in the southern States, the outbreaks of plague in California and our island possessions, and similar outbreaks have been handled. In every instance, however, there has been thorough cooperation on the part of the Federal, State, and local authorities. The equity of our form of government requires that the two latter shall exercise their police powers to the fullest extent, and it is on request of these authorities that the Federal government goes to their assistance. This may be advisory in character, or may assume a more active form. When material aid is extended, the government's funds are required to be expended by officers of the Federal Public Health Service, and these latter are therefore placed in charge, and have the cooperation of State and local officials as well as officers of the Federal government. The occurrence of epidemics affords opportunity for investigations of an epidemiological character, and advantage is taken of such situations. As an example may be mentioned the studies of plague in California and typhus fever in Mexico City.

Chief of the Department of Medicine (Male), Philippine General Hospital.—The United States Civil Service Commission announces an open competitive examination for chief of the department of medicine, Philippine General Hospital, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in Manila, Philippine Islands, at a salary of \$4,000 a year, and vacancies as they may occur in positions requiring similar qualifications. The Philippine hospital is probably the best institution of its kind in the Eastern Hemisphere, of 350 beds capacity, with an equipment which will compare favorably with that of any hospital in any part of the world. The new conditions, and the as yet undescribed diseases, that are constantly encountered furnish a wide field. The Bureau of Science, which is on the hospital grounds, has one of the largest and most favorably known research laboratories in existence. If after a year's trial the services rendered prove thoroughly satisfactory, promotion may be possible. The position is stated to be permanent during good behavior and satisfactory service. Applicants must be graduates in medicine, must have had thorough laboratory training followed by good clinical experience in a general hospital, must be desirous of continuing in the field of internal medicine, and must have reached their twenty-eighth but not their fortieth birthday on the date of the examination. Persons who meet the requirements and desire this examination should at once apply for Form B, I. A. 2 to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, including the medical certificate, and filed with the commission at Washington prior to the hour of closing business on February 17, 1913. In applying for this examination the exact title as given at the head of this announcement should be used.

Personal.—Dr. L. J. Rhea has been appointed assistant professor of pathology at Harvard University.

Major Sir Ronald Ross, F.R.S., professor of tropical sanitation in the University of Liverpool, has been appointed physician for tropical diseases in King's College Hospital, and will assume his new duties in the fall.

Dr. Oscar Richardson, of Boston, has been appointed associate medical examiner for Suffolk County, to fill the place made vacant by the death of Dr. Charles Sturtevant, of Hyde Park.

Dr. E. H. Galloway, of Jackson, Miss., has been elected secretary of the Mississippi State Board of Health, to succeed Dr. W. W. Smithson, who has been appointed head of the State Insane Asylum.

Dr. John S. Fulton has accepted the secretaryship of the Baltimore State Board of Health, succeeding Dr. Marshall L. Price, who resigned recently.

Medical Director Daniel N. Bertolette, of the Medical Corps of the Navy, was placed on the retired list on January 22d, on account of age. He has been in the service nearly forty years.

The Public Health Commission.—The hearings before the Public Health Commission headed by Dr. Hermann M. Biggs have developed a striking unanimity of opinion that the present method of public health administration in this State needs radical reorganization, and greater centralization of authority. That dissatisfaction with the present methods is felt even by the health officers themselves is indicated by the fact that the legislative committee of the Sanitary Officers of the State of New York last year succeeded in passing through the legislature a bill giving the local health officers some real power to execute their mandates, a bill which was vetoed by the governor. At the present hearing, Doctor Overton, chairman of the legislative committee, brought forward striking testimony to the lack of authority possessed by the present local health officer. On the other hand, he pointed out that there was no power in the State to compel the local health officer to quarantine a case pronounced by the diagnostician of the State health department to be smallpox, if the local health officer chose to say it was not smallpox. This statement was confirmed by Doctor Bolduan, who knew of an instance where a local health officer refused to regard a case as one of typhoid fever, even though the attending physician so diagnosed it and the Widal reaction was positive. A curious exception to the general trend of opinion was that given by Professor Winslow, who believed that the present scheme of organization was, in the main, correct and that it was not wise to effect greater centralization. Moreover, in his opinion, it was not essential that the health officer be a physician; young sanitary engineers would often do better work and could be obtained at a lower salary. These views were vigorously combated by the other experts. A comprehensive scheme of reorganization was presented by Doctor Bolduan, of the New York City Department of Health, who believes strongly in greater centralization, also that this can advantageously be combined with a certain amount of representation of the local communities. An abstract of his plan contains the following novel suggestions:

The supreme public health authority is vested in a State Health Session, composed of the State commissioner of health, the health officer of the Port of New York, the health commissioners of each of the cities in the State, and all the county health officers. The last named are new officials described below. This session meets annually, and has wide powers, practically identical with those exercised by the Board of Health of the City of New York.

The State Health Session enacts Statewide public health laws, the enforcement of which is vested in the State commissioner of health and the county health officers.

A smaller body, the State Health Council, composed of six members of the session and elected by the session, together with the State commissioner of health, and the general medical officer of the city of New York, act in place of the session between the annual meeting. The council also coordinates the work between various county health officers or between county and city health officers.

The State commissioner of health is the chief executive of the State public health administration, but is subject to the rules and regulations of the session.

The unit of public health work is the county, and the executive of county public health administration is the county health officer. He is a trained official, devoting full time to his work and not practicing medicine. He enforces the State public health law, and carries out all proper orders of the State commissioner. The present local boards of health are abolished and practically all the powers and duties of these boards fall on the county health officer.

The present local health officers are retained, and with very similar duties, but they are subject to the proper orders of the county health officer.

Pith of Progressive Literature.

CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND
PATHOLOGISCHE ANATOMIE.

December 15, 1912.

Localization of Emboli of the Lung.—Reye concludes that embolic infarcts may occur at any place in the lung, irrespective of the primary site of the embolus. The part most commonly involved is the lower lobe.

LYON MÉDICAL.

December 29, 1912.

Improvements in Diagnosis of Alternating Pulse.—L. Gallavardin and L. Gravier had observed in taking the systolic blood pressure in certain severe cases of nephritis, that when this pressure was attained, the finger placed over the radial artery did not feel a sudden cessation of the pulsations, but for a certain period perceived alternate beats. From this they have developed more sensitive methods of detecting pulse alternation than those hitherto in use, digital palpation and the sphygmograph. The first requires the use of the ordinary mercury sphygmomanometer. When the pressure in the cuff is still ten to twenty mm. below the systolic level, the finger palpating the radial perceives, in a case of alternating pulse, first an increased difference between the strong and weak beats, then a sudden cessation of the weaker beats. By substituting a sphygmograph for the finger, tracings illustrating these changes can be obtained. With a dial sphygmomanometer, similar modifications are seen in observing the movements of the needle. Where no instrument is at hand, the brachial artery should be compressed against the humerus, just above the bend of the elbow, with the index and middle fingers of one hand. By gradually increasing the pressure, the other hand, palpating the radial, will at a given period feel only alternate beats. Although it is somewhat difficult to maintain an even pressure over the brachial, very slight degrees of alternation, which cannot be detected by mere radial palpation and are hardly noticeable in ordinary sphygmographic tracings, can thus be demonstrated. The importance of early recognition of the *pulsus alternans* lies in that the latter is the only form of arrhythmia which gives direct information concerning the contractile power of the myocardium, without regard to irritability and conductivity.

Section of Spinal Nerve Roots in Parkinson's Disease.—R. Leriche reports a case of paralysis agitans in a man, fifty-seven years of age, in which the sixth, seventh, and eighth cervical roots were cut on both sides. During the anesthesia it was noted that the tremor, previously intense, ceased, while the rigidity persisted. This condition was maintained for six days, and convalescence seemed assured, when the patient suddenly succumbed to asphyxia in the night. Notwithstanding the unfortunate result, which the authors ascribe to infection in the vicinity of the medullary centres, the therapeutic effect of the operation in patients not too greatly weakened was demonstrated. The cessation of the tremor seemed to show that the symptom is mainly of peripheral origin.

PARIS MÉDICAL.

January 11, 1913.

Parotiditis in Lead Poisoning.—M. Klippel and E. Chabrol assert that parotiditis is now recognized as a usual symptom of lead poisoning. It is characterized by its insidious and slow onset, it is bilateral, indolent, chronic, benign, and without fever. It is caused probably by the gradual elimination of lead through the saliva and is preceded by stomatitis and inflammation of Steno's duct. In two cases, however, that came under the writers' observation, the parotiditis was painful and was not accompanied or preceded by any stomatitis; coincident with the glandular inflammation were the usual colic and jaundice.

Value of Radium Therapy.—Adolphe Bickel believes that radium emanation is valuable in small doses as an analgesic in neuralgia, etc., but thinks all other actions have been greatly exaggerated. He has seen good results from the administration *per os* of 500 Maché units in rheumatism. Bickel does not believe that radium emanation has any power to render uric acid soluble.

PRESSE MÉDICALE.

December 21, 1912.

The Hypophyxic Syndrome.—Alfred Martinet designates as hypophyxia a combination of symptoms encountered with great frequency but not described *in toto* in textbooks. The chief feature is a permanent feebleness of cardiac action, with a tendency to venous plethora, local or general. The blood pressure is low, the systolic pressure, if from fourteen to seventeen cm. Hg are taken as normal, being diminished to thirteen, eleven, or even nine, while the pulse pressure, normally from five to seven, is four to 1.5. There is also a pronounced excessive viscosity of the blood, though this may be obscured if anemia, and consequently hydremia, be present. The clinical signs consist of a small, easily compressible radial pulse; a pronounced venous pulse in the neck when the subject is recumbent; wine colored or actually somewhat cyanotic cheeks and lips; an abnormal tendency to chilliness of the extremities, which are habitually cold, moist, and even livid; a more or less marked, permanent, or intermittent congestion of the liver, met with in three fifths of the subjects; hemorrhoids, somewhat less frequent; oftener, a varicose tendency or actual varices of the lower extremities; habitual oliguria; some tendency to obesity, though a few of the subjects are thin; the heart ordinarily small upon percussion, with enlargement of the right auricle sometimes noticeable; various unpleasant phenomena such as painful tension in the calves of the legs and kidney regions, lumbago, great tendency to fatigue, headache, dyspepsia, neurasthenia, or finally, sensations of constriction, palpitation, or angor in the heart area. This symptom complex is met with in cases of mitral disease, especially stenosis, and in tricuspid stenosis; in acute or chronic tuberculosis; in chronic lung sufferers with emphysema and bronchitis; in cyphotics, and in the majority of instances—in individuals otherwise apparently normal, especially young girls or women with sedentary tendencies or occupation. It is frequently

hereditary and dependent upon a congenital hypotrophic state of the heart. The venous congestion is a necessary consequence and constitutes a mode of adaptation or defensive reaction to unusual circulatory conditions.

December 25, 1912.

Method of Preventing Operative Pneumothorax.—Robert Danis describes a relatively simple apparatus by means of which collapse of the lungs in operations involving entrance into the pleural cavities may be avoided. The apparatus consists essentially of a small metallic cylinder with an opening on one side occluded by a piece of felt, and other orifices leading to a mouthpiece, to the source of oxygen or air, and to a valve by which the pressure in the apparatus is regulated. The mouthpiece fits under the lips, where it is held by adhesive plaster or a stitch on either side. Chloroform or ether is dropped on the felt and by capillarity mixes with the current of oxygen or air in the cylinder without the loss of any of the internal pressure. The latter is kept sufficient, by regulation of the inflow and valve, to maintain expansion of the lungs when the pleuræ are entered, the nostrils being artificially occluded.

December 28, 1912.

Plantar Ecchymosis in Fractures of Os Calcis.—H. Mondor reports four consecutive cases of fracture of the calcaneum, in which ecchymosis appeared beneath the plantar arch. It was observed soon after the injury, and always remained distinct from other ecchymotic areas, the marginal portions of the foot never being similarly involved. Heretofore, late appearance and perimalleolar situation have been considered the chief characteristics of the ecchymosis in this form of injury. The author's observations show that this view is not wholly correct. In two cases, in which there was no appreciable bony deformity, crepitus, or localized pain, the plantar ecchymosis proved of great diagnostic value. One of the cases showed also that digitoplantar ecchymosis, i. e., ecchymosis at the bases of the metatarsals and along the lateral surfaces of the toes, hitherto considered pathognomonic of metatarsal fracture, may occur in fracture of the os calcis without involvement of the metatarsals.

Cervical Galvanization in Epilepsy.—P. Hartenberg reports good results with this measure. The positive electrode is placed as a collar around the neck; the patient is seated on the negative electrode. A strong galvanic current, from fifty to sixty milliamperes, is passed for one half hour daily or on alternate days. The author refers to four cases in which the seizures, after gradually yielding to the treatment, have not returned for two or three years. Success for the method in all cases is not asserted. It is harmless and should be tried in cases refractory to the ordinary therapeutic procedures.

SEMAINE MÉDICALE.

January 1, 1913.

Treatment of Osseous and Articular Tuberculosis.—F. de Quervain discusses this subject from a general standpoint and concludes that surgical treatment is not to be abandoned because of the success of new methods such as heliotherapy and the x rays. The essential point is to know defi-

nately the value of each method in every form of tuberculosis and plan the treatment accordingly. It is especially important to adopt the right procedure from the start, in order not to have to alter the treatment later, after compromising the functional result. In coxalgia the author advises surgical intervention only under following circumstances: 1. Where x ray examination shows, in an adolescent, a sharply circumscribed tuberculous focus limited to the trochanteric region; 2, in the presence of a sequestrum, with sinus formation; 3, in cured coxalgia with deformity.

REVUE DE MÉDECINE

December, 1912.

Symptomatology of Peripheral Facial Paralysis.—H. Nimier and A. Nimier discuss the mode of production and prognostic significance of certain objective and subjective phenomena observed when in one of the authors facial paralysis developed as the result of a fall. The first was an external deviation of the eyeball, occurring whenever an attempt was made by the patient to close the lids on the affected side; the tendency to abduction gradually disappeared as the power to shut the lids returned. This sign does not appear to have been reported by any previous author. Other signs discussed are Bell's sign, elevation of the cornea behind the upper lid, when an ineffectual attempt is made to close the latter; an involuntary closure of the lids of the affected side in laughing; painful audition; and Hitzig's sign—muscle sound in the affected ear.

Tuberculous Nature of Ascites in Hepatic Cirrhosis.—Germain Roque and Victor Cordier assert, on the basis of a careful study of twenty cases, with numerous laboratory tests, that ascites occurring in the course of hepatic cirrhosis of the Laënnec type is always of tuberculous nature. It is even of tuberculous origin, and implies the presence of an inflammatory process involving the peritoneum. This process may be of a noncharacteristic type, presenting neither the clinical nor pathological appearances belonging to the forms of tuberculous peritonitis hitherto described, and yet being actually of tuberculous origin and nature. Increased pressure in the portal system is not denied by the authors an important, or even exclusive rôle, in the production of the serous effusion, but they believe that its influence is exerted later than that of the tuberculous process, which is primary.

Prolonged Malta Fever.—J. Courmont, P. Sayv. and P. Mazel report a case in which the affection lasted eleven months. In addition to the characteristic fever a wide variety of other symptoms and signs was noted, including neuralgic pains, consolidation of the right apex, cardiac weakness, arthritis, hematuria, recurring epistaxis, diarrhea, intermittent albuminuria and marked emaciation unaccompanied by anorexia.

ROUSSKY VRATCH.

December 8, 1912.

New Method of Preparing Antigen for the Wassermann Reaction.—V. N. Gos describes, in a preliminary report, a method of extracting the syphilitic antigen by means of glycerin. The fresh or dried liver of a syphilitic fetus is macerated with five to ten or fifteen to thirty times the volume of glycerin and placed in a thermostat at 37° C. for

several days, with occasional shaking. The glycerin extract is then centrifugated and the supernatant fluid used for the test. The effective quantity was found to be from 0.05 to 0.1 c. c. The author asserts superiority for the glycerin extract on account of its greater effectiveness and stability.

December 15, 1912.

Tryparosan in Pulmonary Tuberculosis.—S. V. Levasheff reports very favorable results obtained from tryparosan in the treatment of far advanced pulmonary tuberculosis. The administration of this remedy, which is a parafuchsin containing a molecule of chlorine, was followed by a marked reduction of the fever and amelioration of the other signs and symptoms. The dose is from three to eight grammes daily, and, owing to possible irritation of the stomach, should be given with some bland powder, such as marshmallow or sugar of milk, or suspended in oil.

The Cultivation of Living Tissues outside the Organism.—V. N. Shamoff repeated some of Carrel's experiments in growing living tissue *in vitro*, and by using the spleen of a cat, obtained evidence of new growth in a series of ten preparations. The author presents three striking illustrations of new cell formation and also reviews the literature.

Clinical Picture of Primary Cancer of the Lungs.—I. A. Buchstal found in the records of the St. Petersburg City Hospital for 1910 to 1911, eleven cases of primary cancer of the lungs in 2,089 autopsies or 0.53 per cent. Three of these cases came under his observation and he reports them in detail, discussing the various diagnostic signs; he concludes that while the diagnosis is extremely difficult in the majority of cases, yet a careful study of the symptoms together with the more modern diagnostic method will frequently reveal the disease.

REVISTA DE MEDICINA Y CIRUGÍA PRÁCTICAS.

December 21, 1912.

Salvarsan in Ophthalmology.—García del Mazo says that recent studies show that as soon as syphilis is generalized throughout the organism all the tissues are invaded by the treponema, being found principally in the lymphatic spaces, through which it reaches the brain and spinal cord, producing meningitis, myelitis, etc. The cerebrospinal fluid is greatly altered and as the optic nerve, the common ocular motor, the external ocular motor, and the acoustic and facial nerves are found in the base of the skull bathed in this fluid, it is natural to suppose this is the cause of the nerve disturbances. The ocular accidents must be considered as neurorecurrences, as the clinical characters do not look at all like those observed when atoxyl and arsacetin are administered, which from the beginning are of atrophic type. A fact which shows that there are a number of ocular disturbances due to salvarsan is that we see a great number of patients with paralysis of the eye muscles and ocular disorders which are not very frequent in the first period of syphilis when only mercury is employed. The pathogenic symptoms of ocular disorders are very obscure and there are several hypotheses to explain them: 1. The slight toxic action of salvarsan upon cranial nerves shows a *locus minoris resistentiæ* and fixing consecutive of the syphilitic virus; 2, the treponema is hastily expelled from the cutaneous mu-

cous tissues to the nerve centres; 3, a great number of endotoxines, which cause complications, remain free when salvarsan is used; 4, the ocular disturbances are complications of a latent disease in which salvarsan has no influence. Many authors also believe in the influence of the idiosyncrasy upon anaphylaxis, upon hypoalkalization, upon the reaction of Herscheimer, in an excess or defect of the administration of the drugs or in a fault of technic. The author reports the results of a series of cases and finishes by saying that salvarsan does not sterilize the organism; that it does not seem to be dangerous to the healthy eye, and that the results obtained in the treatment of ocular syphilis are not better than those obtained with mercury; therefore "606" must be used only when mercury is not tolerated, and a rapid action is needed.

Rapid Qualitative Analysis of Sugar in the Urine.—Martínez Añibarro says that the qualitative analysis of the urine has become complicated since it has been known that the normal secretion contains glucose and other carbohydrates. To say that there has been found sugar or sugar reducers unless they are found in exaggerated quantity, is to say nothing. Not all reagents nor all the reactions are useful for the case. When the proper elements of the normal urine are found in considerable proportion with respect to the copper introduced as a reagent, a precipitate is obtained whose color does not resemble the brick red or yellow of the copper oxide which is produced by the action of the glucose in the Fehling solution. This color is brown with a violaceous tint. This tint can be seen better than the yellow or yellowishness which can be easily produced by several incidental causes, including the characteristic color caused by the action of the urine. The analysis must be based on the copper percentage, which must be very small, and the trial is intended to fix a limited proportion, for instance, one or two grammes of sugar to each litre of the secretion. The author considers that when the principal reducing agents are combined in a proportion less than two or three grammes to the litre they are of no practical importance. The copper salt is placed in small cardboard strips in fixed proportions that cannot be attacked by the Fehling reagents or other similar reagents which are employed separately. The author has introduced a modification in the process which consists in placing on the cardboard, near each other, two small equal portions of the white mass produced by the reagent of the copper salt, therefore it is possible to know at once, by comparison, the results of the brown color to which he refers. That the color is due to the elements of the urine, which are different from the sugars which take part in the reaction, is shown by the substitution of the urine by a simple aqueous solution of the sugar reducers, as the reddish or yellow tone will then appear.

BRITISH MEDICAL JOURNAL.

January 11, 1913.

Insect Porters of Bacterial Infections (Lecture II).—C. J. Martin epitomizes the evidence bearing upon the rôle of the rat flea in the transmission of plague, and summarizes the claims that flea transmission is the predominating mechanism from rat to man as follows: 1. Experimental evi-

dence shows that plague is easily carried from animal to animal by rat fleas; 2, in the presence of fleas, the epizootic, if started, varies in severity and rate of progress with the number of fleas present and the season of the year, whereas all attempts to induce epizootics in the absence of fleas have failed; 3, under natural conditions an animal can be protected from plague infection by any procedure which excludes the visits of fleas; 4, the only discovered infection in plague houses resides in plague infected fleas; 5, rat fleas readily bite man; 6, the conclusions drawn from animal experiments, when applied to the problem of the spread of plague among men, afford a reasonable interpretation of every cardinal epidemiological fact. It has been found possible to transmit plague experimentally by means of the human flea, but the direct transmission of infection from man to man in this manner cannot be of frequent occurrence, else we should have evidence of it instead of dependence on the epizootic. The reason for the ineffectiveness of the human flea is to be found in the fact that in man the degree of septichemia before death is so much less than in rats that the chance of a flea imbibing even a single bacillus is small. The present position with regard to the transmission of typhus fever by lice may be summarized thus: 1. The infection, which circulates in the blood during and for some time after the febrile period, is taken up by lice and may be transmitted to monkeys by them; 2, there is reason to believe that the virus proliferates within the lice; 3, the infectivity of lice endures for seven days and seems to be greater some days after feeding than at once; 4, there is reason to believe that the infection may be transmitted to a second generation of lice; 5, the present limitation of typhus fever, and its climatic and seasonal variations, are readily interpreted on assumption that lice are the essential porters of infection. Martin says of the bed bug that there is no evidence to incriminate it in the case of either typhus or relapsing fever. While it is possible to transmit plague experimentally by this means, there is no evidence for supposing that this occurs to any extent in Nature.

Salvarsan in Pernicious Anemia.—E. F. Maynard mentions some of the reports of the strikingly favorable effects of the use of this drug in such cases, and in turn reports the total failure in his hands of the treatment of one case. He believes the record of this failure to be necessary to dispel the growing view to the effect that the drug is a specific in pernicious anemia.

LANCET.

January 11, 1913.

Colloid Tumor of the Third Ventricle, Causing Death.—A. J. Hall reports two cases of this rare condition and adds a brief survey of seven others from the literature. The symptoms do not differ from those of any intraventricular tumor of different structure but similar location, but he believes that an effort should be made to secure an accurate diagnosis of the colloid tumors as it seems probable that ventricular puncture with free removal of fluid would give temporary relief. There is also a possibility of removing the tumor, or of establishing a

permanent communication between the lateral ventricles and the subarachnoid space. The tumor produces its symptoms by obstruction to the veins of Galen and the foramen of Monro.

Pneumonotomy for a Foreign Body.—T. H. Kellock opened the chest of a child, four and a half years of age, and incised the lung, removing a pin which had been drawn into the trachea some time before. The lung was then sutured and the chest closed save for a small drainage tube, inserted on account of the presence of a small amount of pus which was found about the pin. The child made an excellent recovery, and the case is reported to show the small risk of such an operation as pneumonotomy on a healthy lung, though done without resort to pressure cabinet or other means of preventing pulmonary collapse after the opening of the thorax.

Alleged Diagnostic Value of the Provocative Injection of Old Tuberculin in Suspected "Closed Pulmonary Tuberculosis."—E. E. A. T. Rigg made observations in sixty-one cases of old tuberculosis in which no tubercle bacilli had ever been found. In four cases, 6.5 per cent., the injection of old tuberculin caused bacilli to appear in the sputum. However, the value of this observation is reduced to nothing by a study of control observations which showed that cases of tuberculosis would reveal bacilli in subsequent examinations when the first examination was negative—this occurring in 12.5 per cent. of cases. Focal signs were produced or increased in fourteen patients, or 22.9 per cent., after the injection of tuberculin. Control observations on this point showed that such observations after tuberculin are of little importance as a large number of cases show spontaneous increase in focal signs without tuberculin. Last, tuberculin often fails to produce any reaction in known tuberculosis.

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

December, 1912.

True Serous Leptomeningitis Cured by Operation, with Considerations on this Interesting Otitic Complication.—S. Citelli announces that the cytodiagnosis gave him the sure proof of the presence of leptomeningitis, the condition being characterized by the opaline tint and the increase of pressure of the fluid, the existence of numerous leucocytes, and particularly of the polynuclear bodies. He suggests that every time an increase of the meningeal or ventricular fluid is suspected in a patient attacked by an aural suppuration, it should be remembered that not only simple, serous leptomeningitis, but even multiple localized or general pathological changes can cause increase of the meningoventricular fluid. Such a condition of meningoventricular dropsy may be produced in cases of cardiac weakness, or in embarrassed pulmonary circulation, or by the compression or thrombosis of the internal jugular, and also following thrombosis or compression of the sinuses of the dura mater; at the same time not denying that there exists true leptomeningitis of aural origin. Whether the acute serous leptomeningitis be consecutive to general infections or be of otitic origin, the author states that in either case a phlogistic edema of the

meninges is produced, making also possible an accumulation of fluid in the ventricles (acute ventricular dropsy). From the clinicotherapeutical point of view, it must always be established before operation whether the signs are referable to the aural lesion. This can be done by determining the presence or absence and character of the fever, age, and temperament of the patient, and by the clinical examination of the cardiovascular system, liver, urine, intestinal discharges—especially if there are indications of an intestinal toxemia. The author further advocates lumbar puncture when otitic serous leptomeningitis is suspected, both for diagnosis and cure. He believes that otitic serous leptomeningitis exists, but that it is rare. It is difficult to reveal it at the serous stage because of its transitory nature. It must not be confounded with other conditions with meningeal symptoms. He further believes that to establish the differential diagnosis between true serous leptomeningitis and noninflammatory meningoventricular dropsy, it is expedient to have recourse to the cytological examination of the cerebrospinal fluid.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

December 2, 1912.

Rare Eruption in Smallpox.—Lawrence G. Fink reports a case in which, two and a half months after convalescence from smallpox, the patient had an attack of fever, followed next morning by the appearance of papules, some of which developed into vesicles. A few of the latter became pustular and scabs formed, the lesions being in every respect similar to those of mild chickenpox or modified smallpox. The patient had not been in contact with any person suffering from either of these diseases. The lesions were most numerous on the back and chest. Two "seeds" were found on one of the palms. Shortly after the appearance of the eruption the axillary and femoral glands became enlarged. The author deems it best to designate the condition a "residual" eruption.

Cell Inclusions.—Aldo Castellani reports from Ceylon the finding of chlamydozoalike bodies in epithelial cells of the urethra in a case of chronic, nongonorrheic urethritis of the conjunctiva in a case of malaria with serous discharge from the conjunctiva, and of the oral mucosa in a case of sprue. He considers them, with the possible exception of those found in the conjunctiva, as merely products of cellular degeneration. Other cell inclusions, oval or roundish and staining deep blue, occasionally vacuolated and generally presenting some chromatin dots, were found in yaws, psoriasis, and many other pathological conditions in the leucocytes and epithelial cells. The author does not consider them to be of parasitic nature.

December 16, 1912.

Copra Itch.—Aldo Castellani and Stanley Hirst present a report on a peculiar eruption noticed by the former in persons working in copra mills in Ceylon. Copra, as is well known, is derived from coconuts. The skin condition greatly resembles scabies, but no burrows or cunicula are present. The eruption generally begins on the hands, and from there spreads to the arms, legs, and trunk, never affecting the face. It has very little tendency

to heal spontaneously while the patient continues working in the mills, but disappears if he remains away for some time. The cause was found to be a small, white mite, which was discovered in great numbers in copra dust, and reproduced the pruriginous eruption when applied to the skin of unaffected individuals. A five or ten per cent. betanaphthol ointment was found very useful in relieving the condition. Hirst identified the mite as a new variety of *Tymglyphus longior*, which is found widely distributed in Europe on various sorts of dried or preserved animal and vegetable matter.

INDIAN MEDICAL GAZETTE.

December, 1912.

Influence of the Monsoon on the Incidence of Eclampsia.—G. C. Fraser has noticed that the number of cases of eclampsia increases greatly during the clammy moist heat of the monsoon, and suggests this as an explanation. Eclampsia is a condition of toxemia associated with pregnancy, due to the retention or formation of an undetermined poison or poisons in the system, which, acting on the higher centres, produces reflex convulsions and coma. Albuminuria is a common, but not necessary accompaniment. In a hot, dry atmosphere the sweat evaporates as fast as it is secreted and the ducts are kept constantly clear, but when the air becomes moist and the temperature lower the sweat accumulates on the skin, the ducts become waterlogged, and, as a natural sequence, a great accumulation of waste bodies, toxic to a degree, which would otherwise have been got rid of, collect in the deep layers of the skin, are carried off into the circulation and to the higher centres, where they act as powerful excitants to set up acute inflammations of the kidneys and other organs. This effect is increased in pregnancy, because of the normal oversecretion from most of the secretory organs and the greater accumulation of toxic bodies when the sweat glands are thrown out of gear. This primary accumulation causes the secondary involvement of the kidneys and the final grave toxemia. If this is the case eclamptics should be treated by being placed in a dry, hot atmosphere, and the writer suggests wards of special construction for such patients, or rather for those who present premonitory symptoms of the disease.

Preliminary Note on Some Cases of Spirillar Fever in the Darjeeling District.—A. M. Jukes calls attention to some small localized epidemics of fever, the diagnosis of which has presented some difficulty. The mortality has been very high in some of them. The patients fell ill in batches of two or three at a time, with an interval of about three weeks separating the batches. All presented the same symptoms: Fever, usually about 101° to 102° F., but in some cases 104° or 105°; headache, jaundice, the intensity of which varied considerably, nausea, but no vomiting; no albuminuria. In the fatal cases the patients became delirious, comatose, and died on the seventh or eighth day. The blood of the patients contained spirilla, which the writer thinks were shorter, thinner, and less actively mobile than *Spirillum Obermeieri*, which diminished in each case after the sixth day, while

at the same time there was a rise in the number of polymorphonuclear leucocytes. The spirilla disappeared from those who recovered on the eighth or ninth day. Attempts failed to keep the spirillum alive either in culture media, or by inoculating white rats.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 16, 1913.

Antitoxine Administration.—William H. Park urges the importance of giving all the required antitoxine promptly and usually in a single dose. The object is to get, as quickly as possible, enough antitoxine into the blood to neutralize any toxine present there, so that no further toxine can pass out to the tissue cells. When injected subcutaneously the absorption is slow, and the patient gains from a single injection an increasing accumulation in the blood during the first three or four days, which reaches its highest point from the second to the fifth day. In some patients antitoxine formation goes on rapidly, excited by the toxine produced in the diseased tissues to add to its amount to that given. Two examples given were: An infant received one injection of 10,000 units; at the end of twelve hours the child had 1.5 unit in each c. c. of blood; at the end of twenty-four hours, 2.5 units; in forty-eight hours, 3.5 units; in seventy-two hours, 4.5 units. The amount slowly increased and reached its highest point at the end of the fifth day. In another child the content of the blood at the end of a day was but 0.5 unit; then antitoxine formation suddenly began, and at the end of the fifth day the child had sixty units in each c. c. of blood, at least ninety per cent. of which was due to its own production. The fact that a subcutaneous injection is absorbed thus slowly is not, he thinks, widely appreciated. The disappearance of the swelling after the injection indicates only the absorption of the water, not that of the antitoxic globulins and their entrance into the blood. The giving of larger doses than necessary does no harm, but an insufficient first dose may be a serious mistake; hence the writer believes that we should give in the first dose all that we think is required for the entire disease, and that we should give it intravenously rather than subcutaneously in all bad cases of diphtheria, and in all cases of tetanus, because the difference in the amount of antitoxine in the blood during the first day is very great as it is given in the one way or the other. At the end of six hours one has with a suitable amount by the subcutaneous method two units, by the intravenous method twenty units in each c. c. of blood. He feels certain that 5,500 units given intravenously are as efficacious as 20,000 given subcutaneously. As the hours pass the amount in the blood decreases after an intravenous injection, while it increases after a subcutaneous. He has never observed any bad results from this method of administration. He urges that 20,000 units of antitoxine be injected intravenously in all cases of tetanus at the very first sign of the disease. If only a smaller quantity is available it should be injected at once and a larger quantity later, for time is of more importance than quantity. When rigidity continues he advises to continue giving smaller injections every twelve hours, but he is growing doubtful as to the value of repeating the injections.

At intervals of twenty-four hours they maintain the strength of the antitoxine. Above all he urges to waste no time, but to act at once.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 18, 1913.

Diagnosis of Gallstone Lodged in the Common Duct.—William Fitch Cheney's conclusion is that the diagnosis of gallstones lodged in the common duct depends most on history. The physical examination is valuable chiefly in eliminating other resembling conditions. The ultimate determination of the true nature of the affection is derived from careful observation of the course of events in the case, verifying the patient's own story, and from a judicious weighing and sifting of all the evidence, from whatever source obtained.

Anomalous Internal Carotid Artery and Its Clinical Significance in Operations on Tonsils.—P. G. Skillern calls our attention to many cases of anomalous carotid artery, reminds us that this condition may be present in any case, and advises thorough ocular and digital exploration of the pharynx for arterial pulsations before proceeding to operations upon the tonsils. Where operation is indicated, in the presence of the anomaly, preliminary ligation of the internal carotid opposite the upper border of the thyroid cartilage should be done. If in doubt as to whether the anomalous artery is the ascending pharyngeal or the internal carotid, the common carotid should be occluded in the same situation with a Matas metal clip. If the artery is discovered and injured during operation compress the common carotid artery against Chassaignac's tubercle (the prominent anterior tubercle of the transverse process of the sixth cervical vertebra), and then perform ligation.

History of a Typhoid Carrier.—Donald H. Currie and F. H. McKeon report the history of a patient who had typhoid in 1908 and who until June, 1912, probably discharged virulent typhoid bacilli frequently, which caused the illness of twenty-eight men, four of whom died. The patient was treated with autogenous vaccine for two months, ten doses being given, ranging from twenty-five thousand to a billion bacilli. This is a further confirmation that a patient after recovering from typhoid may become a carrier of virulent bacilli for a long time. Although autogenous vaccine will apparently rid such patients of their bacilli, a positive conclusion as to its uniform value should be reserved until further evidence has been adduced.

Results of Two Hundred Chromoureteroscopies, Employing Indigocarmine as a Functional Kidney Test.—For B. A. Thomas's article, see this JOURNAL for June 8, 1912, page 1229.

Practical Value of Blood Cryoscopy for the Determination of Renal Function.—For M. Krotozyner and George W. Hartman's article, see this JOURNAL for June 8, 1912, page 1229.

Study of the Accuracy of the Phenolsulphonaphthalein Test for Renal Function.—For this article by J. T. Geraghty, see this JOURNAL for June 8, 1912, page 1229.

Double Infection with the Human and Bovine Types of Bacillus Tuberculosis.—Paul A. Lewis

reports a case of pulmonary tuberculosis (chronic) due to the human type of bacillus tuberculosis, and a tuberculosis verrucosa cutis due to the bovine type of organism at one and the same time. The finger infection had existed for five years and was acquired from cattle in connection with the man's occupation as butcher.

MEDICAL RECORD.

January 18, 1913.

Radium and Thorium Therapy.—Carl von Noorden formulates certain contraindications to radioactive therapy which have been tested out in his own clinic in Vienna. These are conditions of cardiac weakness of every kind, neuroses of the vegetative nervous system, especially the sympathetic, and severe neurasthenia. It should not be used in Basedow's disease, diabetes, or in febrile conditions. It is positively harmful when there is tendency to hemorrhage of any kind, especially menorrhagias, metrorrhagias, hemoptysis, hemorrhagic diathesis, and hemophyilia, as well as in far advanced affections of the erythroblastic and the leucoblastic systems, in contrast to early stages which are favorably affected by this treatment. It is contraindicated in cachexias of every kind and has a pronounced unfavorable influence on cancerous cachexia, and in senile marasmus, in contrast to the beginning phenomena of old age, which are benefited by this treatment. The writer concludes that the weak emanatoria are harmless and often a mere therapeutic byplay. With the stronger radioactive methods, however, the greatest precaution is necessary, for they are as potent for good or evil, for healing or danger, as are the strongest alkaloids.

Prognostic Value of Rinne, Weber, and Schwaback Tests.—A. B. Bennett, Jr., concludes that tuning fork tests are of value as aids in prognosis when they point to middle ear disease. He advises us against giving an unfavorable prognosis until treatment has been given and found to be useless. Instead of recording a positive or negative Rinne test he suggests that the record show the proportion of time for the plus figure thus: Rinne—Right, Air + 10/30; Left, Bones + 5/20. The numerator tells the number of seconds air or bone conduction exceeded the other, and the denominator indicates the total time of hearing for the stroke of the fork.

Three Important Don'ts in Bone Plating.—G. P. Coopernail cautions against plating a compound fracture until the wound has healed and all danger of infection is past. A fracture that fails to unite where there is good apposition and no tissues between the ends of the bones, should not be plated, for the plate will not increase your chances of obtaining a good, strong callus; inject blood between the ends of the bone (Bier), or glycerite of tannin (Dawbarn). Don't put your fingers in the wound if you *do* wear gloves; all instruments after being used in the wound should be boiled before using a second time.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

December, 1912.

Cæsarean Section; Technic of the Operation.—A. B. Davis calls attention to the fact that despite the broader scope and the greatly increased

number of pathological conditions complicating labor which are now considered indications for the performance of this operation, the maternal mortality has been greatly reduced. A few years ago it was almost prohibitive, but at the present time it is the consensus of most operators and writers that not more than two per cent. of the mothers, in ordinary favorable cases, fail to survive Cæsarean section. The author believes that many mothers and infants lose their lives each year and many others are left more or less permanent wrecks who could have been saved by the timely employment of Cæsarean section. Of the last sixty-nine such operations by Davis, 94.21 per cent. of the mothers survived and 88.57 per cent. of children. The technic of the operation advocated is given in full.

Acute Dilatation of the Stomach Following Cæsarean Section.—A. B. Davis reports in this second communication a fatal case of this condition and believes that much of the bad status of the patient was due to the crudely conducted anesthesia in the hands of an untrained interne.

Mechanism and Treatment of Placenta prævia.—H. Schwarz maintains: 1. No form of placenta prævia, as such, ever offers a justifiable indication for Cæsarean section; 2, version after Braxton-Hicks in the presence of a viable child deliberately sacrifices the life of that child and has no place in modern obstetrics; 3, the cervical and vaginal tampon and the intrauterine use of rubber bags are safe and efficient means for controlling hemorrhage and for securing sufficient dilatation for delivery through the natural passages.

Ectopic Gestation.—S. W. Bandler contributes an interesting article on this subject and reports what he considers to be the earliest recorded tubal ovum. It was removed from a patient who went only a very few days over her period and then began to bleed and spot for some days, which symptoms were accompanied by cramplike pains of great severity in the right side. Microscopical examination showed that the embryo as such was not present. It was represented by several large masses and streaks of trophoderm which lay near the trophoblast. There was as yet no true chorion formation.

Training of Midwives.—Clara D. Noyes calls attention to the great number of births, about fifty per cent., that are conducted by midwives, consequently the necessity of having these women properly trained and controlled.

The Relation of Prolonged Pregnancies to some Cerebral Lesions.—H. L. Winter gives a brief but interesting presentation of the relation of prolonged pregnancies to deficient mental states. Out of 785 mentally deficient children, seventy-five are known to have been born after prolonged pregnancies. Such a condition places the infant brain in jeopardy before and during birth.

AMERICAN JOURNAL OF UROLOGY.

October, 1912.

Surgical Treatment of Renal and Ureteral Calculi.—D. P. Kouznetzky reviews eighty-two cases from Fedoroff's clinic; the author considers pyelolithotomy *in situ* the ideal operation, and insists that any stone of the kidney pelvis may be removed in this way. Guyon's incision is used in

cases in which the radiograph shows the lower end of the stone at the level of, or above the twelfth rib. The lower posterior surface of the kidney is exposed, the assistant holding the fascia of the capsule with a clamp. If necessary the twelfth rib is resected. It has never been necessary to separate the upper pole of the kidney or to expose its anterior surface. The advantages of the operation are that the kidney suffers little traumatism, that less scar tissue forms around the kidney than when the kidney is delivered, and that the wound in the kidney pelvis heals as well as a nephrotomy wound. The author does not consider it necessary to continue the incision into the kidney substance, as suggested by Zuckerkandl and Makkas.

Unrelieved, Inexplicable Vesical Tenesmus.—F. R. Hagner reports a case of frequent urination and great tenesmus. One week previously the patient, sixty-seven years old, had complete retention relieved by catheterization. Cystoscopy and rectal examination revealed a moderately enlarged prostate; examination for central nervous lesions was negative. There was nothing suggestive of malignancy. A perineal drainage of the bladder did not relieve the tenesmus. Suprapubic cystostomy was also useless. The patient died thirty-six hours after the second operation, frightful tenesmus continuing almost to the time of his death. Autopsy revealed no explanation for the condition.

My Latest Views on Salvarsan.—A. Ravogli has given nearly 300 injections of salvarsan, one third intravenously, two thirds intramuscularly, and believes that infants with hereditary syphilis do better under the old mercurial treatment than under salvarsan. Of nine babies, from one to six months of age, who received twenty c. c. of salvarsan, according to Alt's method, five died between the second and third weeks after injection, and four showed progressive improvement.

December, 1912.

Surgery of the Kidney, Based on Case Records of Ten Years.—J. F. Baldwin and H. A. Baldwin again call attention to their operation of nephropexy, in which after the kidney is brought up into the original wound a secondary incision is made through the fascia, about one half inch from, and parallel with the original incision. One flap of the kidney capsule is sutured into this secondary incision and the other into the original incision. Out of fifty-four patients, on whom this operation was done, forty-five had complete cessation of symptoms; four were improved; and five considered the operation a failure.

Hypernephroma in a Horseshoe Kidney.—T. R. Wolff reports a case of severe epigastric pain and emaciation, in which hematuria had not been noticed. A large tumor in the vicinity of the navel was felt and smaller tumors in the left axilla. The patient died one month later. Autopsy showed that the abdominal tumor was a hypernephroma, occupying almost the whole right segment of a horseshoe kidney. There were metastases on the surface of the left kidney, in the mediastinal lymph glands, on the surface and in the parenchyma of the liver, in the myocardium, and in the left axilla.

ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY
September, 1912.

Prevention of Deafmutism.—Macleod Yearsley makes a strong plea for the early recognition of deafness in children by the family physician, in order that if it is congenital, the child may be sent to proper schools for talking, while if it is acquired, the cause may be ascertained and if possible removed. Congenital deafness is most frequently seen in families with this same defect, either in the direct ancestry or in collateral branches. The marriage of blood relatives, as of cousins, shows a large number of children born deaf. Beside these two points, the other causes of congenital deafness are alcohol, insanity, and syphilis. Acquired deafness results most often from the infective diseases, measles, scarlatina, diphtheria, pertussis, influenza. German measles, typhoid, epidemic cerebrospinal meningitis, varicella, mumps, and smallpox. These diseases account for 34.4 per cent. of acquired deafness. In addition, pneumonia, rheumatic fever, tuberculosis, and congenital lues may result in deafness. Diseases of the nervous system, as meningitis, exclusive of the epidemic type, hydrocephalus, etc., give 18.7 per cent. Primary ear disease was responsible for 29.7 per cent. of acquired deaf cases. Of these fully one half were eminently preventable, because resulting from adenoids. Yearsley's conclusions are that congenital deafmutism would be vastly lessened if the marriages of deaf born, blood relatives, alcoholics, syphilitics, and those with a family taint of insanity could be prevented; he advocates sterilization as a positive means of obtaining this end. Acquired deafmutism will be lessened with better care of the ears in the exanthemata; the proper treatment of congenital syphilis; and correcting the causative adenoid condition and nasal disease. Prophylaxis in the nose, mouth, and ears in the infectious diseases and removal of adenoids, etc., would give this great reduction in the number of these very unfortunate persons.

Middle Ear Suppuration and Life Insurance.—Emil Amberg says that a person who has undergone radical mastoid operation and whose osseous cavity is covered with epithelium is "cured"; also cases are to be considered cured, even if the region of the ostium of the tube is not epidermized, providing the cavity is otherwise smooth and open to inspection. In nonoperated cases, a marginal perforation is classed as dangerous, as a suppuration of the bone, especially if cholesteatomatous material is present. A central perforation is comparatively not dangerous; so that it seems that not all cases with chronic middle ear disease, even if not operated in, should be excluded from life insurance.

Relief of Tinnitus by the Use of Silver Nitrate, Applied within the Eustachian Tube.—W. C. Braislin has used this method with great benefit in conjunction with the catheter and other means, especially in tinnitus due to swelling and engorgement of the mucous membrane lining the tube. Application of silver nitrate, five per cent., is made by a cotton applicator, passed inside a catheter and for a distance of one quarter to one inch within the Eustachian tube. This treatment is done after inflating the ear *per tubam*. It is not of use

in tinnitus due to otosclerosis or to labyrinthine or to auditory nerve lesion, nor where the nerve centres are at fault. Tinnitus of digestive or of circulatory origin must receive treatment in addition to local measures. Hypertrophy of the posterior ends of the turbinates, polypi, specific ulcers, etc., are to be looked for by the pharyngoscope, and treated. Braislin has found the silver applications of more help than the simple bougie or the bougie for carrying the electric current.

BULLETIN OF JOHNS HOPKINS HOSPITAL.

December, 1912.

Carcinoma Skin Reaction.—Hans Lisser and Arthur Bloomfield report the results obtained in sixty-two verified cases of malignant disease and in ninety-four healthy individuals or patients suffering from various nonmalignant ailments with the skin reaction of Elsberg, Neuhof, and Geist, which consists in the subcutaneous injection into the forearm of five minims of a twenty per cent. suspension in normal salt solution of washed human red corpuscles from a normal individual. The cutaneous reaction begins to appear between three and five hours after the injection, gradually increasing in intensity until the end of six to eight hours, when it is manifest as a somewhat irregular, but well defined, area of a brownish red color, often with a bluish tinge. The lesion is raised, slightly boggy, and frequently somewhat tender. Of the cases of verified malignant disease, two thirds gave a positive reaction, and one third were negative; while in the control cases, 91.6 per cent. were negative and 8.4 per cent. positive. As a practical diagnostic adjunct, a negative skin test adds little or no weight to the evidence against cancer, but a positive reaction is strong presumptive evidence of it. To obtain reliable results, corpuscles must be used which are neither agglutinated nor hemolyzed by any sera *in vitro*, as is the case in a certain proportion of all persons. In the author's tests, the corpuscles were always obtained from the same individual.

LONG ISLAND MEDICAL JOURNAL.

December, 1912.

Poisoning by Eggs.—R. A. Henderson relates his own symptoms arising from the ingestion of lightly cooked eggs. The first attack began when about fourteen years of age, and was ushered in with a sudden appearance of blindness in the left eye. This lasted for about half an hour and was at once followed by severe pain in the right temporal region, accompanied by nausea, vomiting, and diarrhea. Attacks such as this took place at frequent intervals, but the blindness has never recurred. The attacks are typical, acute, migrainous seizures. From the age of about twenty-three years the attacks have always come on in a definite manner; when he was in the best of health, usually in the morning, objects would suddenly appear brighter than usual, then an inability to read developed, which was followed by aphasia, vertigo, and annoying anesthesia in various parts of the body. After an hour or more there would be a sudden change; there would be comparative comfort for a few moments, when a violent temporal headache would begin, accompanied by nausea and vomiting. Treatment was without avail. Through the sug-

gestion of another physician the cause of these attacks was found to be the ingestion of a lightly cooked egg, or of some other closely similar proteid. Eggs which had been boiled for half an hour were tried, and it was found that these could be taken without any ill effect. Henderson suggests that the phenomena may be in the nature of an anaphylactic response to the egg proteid, though this would seem to be somewhat invalidated by the absence of symptoms when a hard boiled egg is used, heat not destroying the proteid toxins.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

December, 1912.

Determination of the Functional Activity of the Liver as Indicated by the Presence of Urobilinogen in the Urine.—Allan Eustis urges the use of the aldehyde reaction to determine the functional activity of the liver, through the reaction produced in the presence of urobilinogen. As the reaction is so easily carried out, and, when marked, is so simple to interpret, he fails to see why it has not met with more universal favor. To ten c. c. of freshly passed urine is added two or three drops of a solution of four grammes of paradimethylnidobenzaldehyde in 200 c. c. of twenty per cent. hydrochloric acid. If urobilinogen is present a scarlet red color appears which persists on dilution with water. While urines in which there is no urobilinogen may give a reddish color (due to pyrrol derivatives), on the addition of the reagent, on diluting with water the reddish tinge changes to yellow, while those urines giving a *positive* reaction change to pink, the color persisting up to a very high dilution. The experiments of Bauer prove that the presence of the aldehyde reaction in the urine denotes lack of liver function, cirrhosis, carcinoma, etc., the degree of loss being denoted by the intensity of the reaction. In icterus from occlusion of the common duct, in which there has been an absence of the aldehyde reaction, if this suddenly reappears, it denotes a reappearance of bile in the intestines or an overcoming of the obstruction. In cases of diagnosed cholelithiasis, in which for some reason operation is deferred, and in which the aldehyde reaction has been present, but has disappeared, and persists negative for several days, immediate operation is indicated to remove the obstruction. The writer reports several cases and tabulates the results of 363 cases in which the reaction was used and in which a positive reaction was obtained in those cases only where there was evidence of interference with hepatic function.

Diagnosis of Aneurysm of the Thoracic Aorta.—Isaac I. Lemann finds that thoracic aneurysm is much more common than usually supposed. It may often be found if we learn to look. In percussing the outlines of the heart we should include percussion of the space at the base of the heart. The earliest signs of mediastinal changes are derived from percussion. In all suspicious cases fluoroscopy and skiagraphy should be employed. The presence of pains in the precordial region, intercostal neuralgia, and pains in the arms should suggest careful examination of the mediastinum, as the pains may be referred pains (areas of head). The neuralgias may be pressure neuralgias. A point

brought out is the percussion of the back over the vertebræ, from the first to the fourth or fifth. Aneurysm should be suspected at once if dullness or flatness is found.

NEW YORK STATE JOURNAL OF MEDICINE.

December, 1912.

Diathetic Deafness.—S. F. SNOW classes the causes of deafness as operable and constitutional. He believes that one cannot emphasize too strongly the importance of recognizing the systemic factors of deafness, and that those who attempt to conduct a case from a purely local standpoint are doomed to failure from the start. The prime constitutional cause is autointoxication, which might be considered as the predetermining cause of all cases of catarrhal deafness that become extreme or chronic. If an occluded passage or some pressure on a sensitive nasal area is to produce a progressive catarrhal state in the middle ear, there must be some depressing organopathic influence at work. The elimination of the enterotoxines through the nasal and aural mucosa induces frequent inflammation of these parts. Autotoxic energy exerted thus along a special course predisposes to catarrhal states that lead to deafness. The use of calomel will often save an autotoxic patient acute suffering by an unloading of the accumulated toxines. To retain and make permanent the results secured from local treatment of cases of deafness we must correct systemic faults and the diathetic influences are apt to be the chief predetermining causes in the most intractable cases.

Otosclerosis.—J. E. SHEPPARD concludes as follows regarding the relation of this condition to deafness: 1. There is a diseased condition of the temporal bone, found at necropsy and by microscopic investigation, which has been termed otosclerosis. It may well be that many temporal bones which are the seat of this condition are passed by without investigation because of an absence of clinical symptoms; 2, we do not as yet know whether this lesion originates in the middle or internal ear; 3, the disease attacks the labyrinthine windows most frequently, though not always; 4, when the windows are involved demonstrable symptoms may result; but, 5, an interdependence between the described anatomical changes and the known clinical phenomena seems to be not proved; 6, therefore, this being true, a diagnosis of otosclerosis in its essence cannot be made; 7, the etiology of this condition is not yet known; 8, we do not know all that is required of its pathology, hence no satisfactory treatment has as yet been proposed.

Maternal Impressions.—L. W. BELLONIS presents the record, together with photographs, of a remarkable series of events which he offers as throwing some light on the mooted question of the influence of maternal impressions. A young and very impressionable, though ignorant woman gave birth to an anencephalic monster which strongly resembled, in general characters, the picture of deformity which her husband could voluntarily produce in himself, and with which he actually frightened her early in her pregnancy. One year later, having been shown this monster at the time of its delivery, she gave birth to another monster which was almost exactly similar to the first. Bellonis contends that the his-

tory which he presents, of fright innocently caused by the husband, was responsible for the malformation of the first baby, and that the sight of this monster, together with the memory of the previous fright and the additional worry as to whether or not her next child was to be the same, was responsible for the abnormality in the second child. He believes that should this woman again become pregnant one might expect her to give birth to another monster.

Proceedings of Societies.

MEDICAL ASSOCIATION OF THE SOUTHWEST.

Seventh Annual Meeting, Held at Hot Springs, Arkansas, October 8, 9, 10, 1912.

The President, Dr. A. L. BLESS, of Oklahoma City, in the Chair.

The Necessity of Gastric and Stool Analysis in Digestive Disorders.—Dr. E. D. HOLLAND, of Hot Springs, Arkansas, thought the treatment of digestive disturbances with the stomach tube was overdone, but that gastric juice analysis was not made nearly as often as it should be. Every case of digestive disorder that presented itself should have a gastric juice analysis, and this analysis should be repeated every five to seven days until conditions resumed the normal. Next in importance to the gastric analysis was the examination of the stool. There was absolutely no way to diagnose hookworm, in most cases, except by examining the stools, and we were finding out all the time that hookworm, like malaria, was not confined to any southern locality, but was found all over the country, although it was more frequent in the south.

Dr. E. H. EASTMAN, of Hot Springs, stated that very few stopped to realize how much abuse the stomach could stand, and how beautifully it could be made to return to its normal function when it had suffered from disease as a result of abuse. He thought the average American stomach was subjected to more abuse than the stomach of any other nationality. People in this country did not pay enough attention to the diet and care of their stomachs. They poured a conglomeration of food into their stomachs in a helter-skelter way, and were it not for the wonderful recuperation of the stomach, the business and society people of the United States would all be under the care of specialists. As to patent medicines, moreover, a lady came to him a short time ago suffering from stomach trouble. She had gastric neurosis, and at that time was taking somebody's nerve for her nerves, swamp root for her kidneys, and some other kind of patent medicine for constipation. It took him about a week to coax this woman away from using patent medicines. He made an analysis of her stomach contents and soon convinced her that his way of thinking was correct, and she gave up the use of patent medicines.

Dr. JACOB W. McCLENDON, of Hot Springs, said the real thing in these cases was diagnosis. Stomach troubles were misleading, at least many of us. We did not get the results we expected because our diagnosis was not correct. It was his belief that if we exercised more care in the consideration of stomach disturbances and tried to find out the real cause, we should be more successful in our treatment of this class of cases.

The Proper Lubricant and How to Use It in Urethral Instrumentation.—Dr. THOMAS M. PAUL, of St. Joseph, Mo., said he pursued the following plan: 1. He immersed a small granite ware bowl for ten minutes in boiling water. 2. He placed this bowl on a small gas stove and poured in a little over 200 c. c. boiling water. 3. He added six grammes tragacanth, and forty-six grammes of glycerin. He added 0.402 gramme oxycyanide of mercury and half a drachm of liquor cresolis compound. 5. He allowed the whole to boil ten or fifteen minutes, constantly stirring with a previously sterilized glass rod or spatula. The stirring was essential to keep the tragacanth from settling to the bottom and burning. In the meantime, a glass

stoppered, salt mouth bottle could be immersed in the sterilizer. These bottles were used as containers for medicated lozenges and could be obtained free at most drug stores. The lubricant could now be poured into the bottle and the latter stoppered. The compound cresol solution was added, not only as an antiseptic and preservative, but also on account of its anesthetic properties. If the mixture seemed too thin, a little more tragacanth might be added; if too thick, a small quantity of glycerin and water.

As to urethral instrumentation, the best way was to lubricate the urethra instead of the instrument. To do this, an ounce glass syringe, with blunt urethral tip, was sterilized by boiling and filled with the lubricant. The air was expelled and the patient's urethra distended by injection. The excess of lubricant was allowed to flow out into absorbent cotton held over the meatus. By this method, the instrument passing into the urethra advanced upon a surface well coated with the lubricant. The excess remaining in the urethra was pushed ahead of the lubricant's tip and forced through the compressor urethra into the posterior urethra. This method of lubricating the urethra, instead of the instrument, was especially desirable in cases of tight stricture and enlarged prostate or where the urethra had been lacerated from rough instrumentation or external violence.

Cerebrospinal Fluid Diagnostics.—Dr. A. L. SKOOG, of Kansas City, Mo., drew the following conclusions: The diagnostic data resulting from careful cerebrospinal fluid examinations in a number of neuropathological conditions was of great importance in arriving at conclusions regarding proper therapy and prognosis. Cerebrospinal fluid diagnostics never supplanted clinical diagnosis. All the necessary accurate clinical neurological findings should be at hand first before rhachicentesis was attempted. Rhachicentesis was indicated in several diseases where its utilization was both for diagnostic and therapeutic measures at the same time.

The Fee Splitting Evil.—Dr. DAVID A. MYERS, of Lawton, Oklahoma, stated that if a doctor called him over the telephone, or sent a patient to him, he took advantage of the first opportunity he had to thank him for his kindness, and in the meantime he tried to do the best work he knew how to do for his patient, and sent the patient home to the family doctor for after care and attention. He considered that he owed no man a cent for referring a case to him, unless the physician spent time and took the trouble to come with the patient at his or her request.

Dr. S. S. GLASSCOCK, of Kansas City, Mo., did not believe in fee splitting. He said this was not a theory that confronted the medical profession, but a condition, and one of the most serious conditions that the American physician had ever had to deal with, and in some form it was here to stay. Any idea that a discussion of this kind would in a short time eliminate fee splitting was a mistake; it would not. He was very glad to defend the country doctors, because the country doctor in ability, morals, and from every standpoint one could possibly conceive of, was the equal, if not the superior, of the city physician. The country physician should be paid for his services in referring a case to a surgeon. The surgeon should insist, and have an understanding with the patient or the patient's friends, that the physician should get a respectable fee aside from the fee of the surgeon for doing the operation. This was the best solution of the problem.

Dr. JABEZ N. JACKSON, of Kansas City, Mo., said the time had come when the profession should take some action if it would keep its skirts clear with the lay people. This subject was not only a matter of conversation among doctors, but the people were already becoming conversant with the fee splitting evil. In a great measure the faulty conditions as they existed lay with the specialist for two reasons. In the first place, there was a lack of consideration on the part of many specialists of the man who referred work to them. The general practitioner felt that he was not properly treated. Another indictment against the surgical profession was that the practitioner had been solicited to do this thing. The speaker would go further and remark that the practitioner had been educated to believe in it, and if he were to make one indictment stronger than another, it was that the proprietary medical schools of this country had been charnel houses in the moral undoing of practitioners.

Dr. JOHN F. BINNIE, of Kansas City, Mo., said that the

family practitioner ought to receive a dignified fee for his services, that is, for making the diagnosis, his time, judgment, and advice. But there was another point of view. The family physician attended Mr. Brown, for instance, when he had typhoid fever. He was in charge of this case for two or three weeks, charging perhaps \$2 or \$3 a visit and making two or three visits a day. For this quite a considerable bill for services was rendered. Again, Mrs. Brown got in the family way, the doctor attended her, and received a good fee for it. Then little Johnnie or Mary got diphtheria. Another child the measles, so that year in and year out, the family physician was getting a considerable income from this one family. Under the circumstances it was his duty to give the best advice that he could. Should he receive a big fee for referring a case in that family to a surgeon for operation? He did not think so. He owed it to the family and to the confidence that the family deposited in him to refer the case to the best surgeon that could be had.

Treatment of Extrauterine Gestation.—Dr. WALTER B. DORSETT, of St. Louis, stated that upon the surgeon's shoulders fell the responsibility of the operation and subsequent treatment. If he were asked what were the don'ts to be observed in the operation for extrauterine gestation, he should mention them as follows: "Don't delay until the patient is *in extremis* from loss of blood. Don't examine the patient by palpation for bimanually too frequently or too roughly for fear of disturbing a blood clot and causing renewed bleeding. Don't disturb the patient mentally. Don't operate in a residence, if it is possible to get her to a hospital. Don't administer a general anesthetic too abundantly, but in extreme cases resort to local hypodermic anesthesia, but don't use the hyoscine, morphine, cactine tablet as the patient's heart would not tolerate the baneful effects of such a combination. Don't waste time in getting into the abdominal cavity and getting hold of the bleeding point, but as soon as the opening was made grasp the bleeding point with the fingers and slide down a clamp and secure it. In desperate cases leave the clamp on, close the wound around the clamp, and put the patient to bed. In such cases don't waste valuable time in searching for small blood clots or a little fetus. Don't give hypodermic injections of strychnine that would whip up an already flagging heart, but rather start proctoclysis or intravenous infusion of normal saline when beginning the operation. When once the bleeding vessel had been secured ten minims hypodermic injections of neutral camphor would most frequently be all that was needed in the way of drug stimulation. Where it was reasonable to surmise that no active hemorrhage was going on and the patient was in a fair condition, less hurry might be enjoined and a more careful toilet of the peritoneal cavity might be undertaken. Don't use the vaginal route. If you had done so and had not had your patient bleed to death on the table, don't do it again or you would meet your Waterloo sooner or later. However clever one might be in his diagnostic ability, one could not always locate the placental attachment, and when once an active hemorrhage was brought on, no matter how quickly one might open the abdomen to secure the bleeding vessel the patient was liable to bleed to death on the table, or succumb in a short time afterward. If the cul-de-sac was to be opened for drainage it could be done more safely and equally well from above, particularly if one had used good judgment in having placed the patient in the Trendelenburg position.

Dr. DAVID A. MYERS, of Lawton, Oklahoma, stated that the first case of extrauterine gestation he remembered having in his practice occurred in the wife of a physician. He examined her, kept her under observation, and thought she was having a miscarriage. He found a mass in the cul-de-sac, and he thought it was a suitable case to open into behind the uterus. Being inexperienced, he did that and about a week afterward he hurriedly opened her abdomen and fortunately saved her life. She had since given birth to a child. A great many cases were not diagnosed as extrauterine gestation, but we thought there was something else the matter with these patients. When the history was clear and unmistakable, we concluded they had extrauterine gestation. He would like to ask Doctor Crossen if it was possible to determine what cases were surgical and what cases were not surgical.

Dr. ST. CLOUD COOPER, of Fort Smith, Ark., recalled one case of extrauterine gestation where the patient was taken

with pain similar to that of gallstone colic. She had missed menstruation about three months. She had pain in the upper quadrant of the abdomen which simulated very much a gallstone colic. She had no elevation of temperature and presented no symptoms of shock. In the last attack, which was accompanied with severe pain, his attention was drawn to the lower part of the abdomen. On examination he found a mass on the right side and suspected the woman was pregnant. A closer examination fully convinced him that that was the case. The physician who called him decided to operate through the vagina against his judgment. The cul-de-sac bulged considerably. He told the physician that if he was going to operate by the vagina, he had better be prepared to go in above as well. He made an incision in the cul-de-sac, which was followed by such a large stream of blood that he thought the woman would die. An incision was then made in the abdomen, the bleeding vessel found and tied. A fetus and cyst were found. There had not been a rupture. The fetus was removed and drainage established through the cyst wall. She recovered.

Dr. JOE BECTON, of Greenville, Texas, said the surgeon was called very often in these cases too late, because the average country practitioner was loath to make a vaginal examination. Physicians who lived in cities did not appreciate this. There were many country practitioners who never made a vaginal examination except during confinement. His first case of tubal gestation was diagnosed by a general practitioner, he operated, and the woman made a nice recovery.

Dr. HOWARD HILL, of Kansas City, Mo., said those cases of extrauterine gestation which began slowly and progressed, like an inflammatory condition, were confusing. This spring he had a patient who went through a series of treatments. She was in the hospital three weeks. Four different doctors curetted her uterus, and still she was not well. She was in a bad physical condition. She had a fluctuating mass behind the uterus. He made an incision and out came a fetus. He removed a lot of stuff with gauze covered forceps, but the patient died of sepsis.

Dr. A. L. BLESSE, of Oklahoma City, recalled a case of a ruptured tubal gestation sac that went on to term. The abdomen was open, and a living child was extracted. The physician was very much puzzled as to the condition found at the time of the examination. He called him in to see the case, and they diagnosed extrauterine gestation at term, operated, made a rapid delivery, and the child lived two and a half years, and then died of pneumonia. They dealt with the sac by packing the membranes full of gauze and letting it slowly separate by granulation.

Doctor CROSSEN stated that part of the surgeon's work was to determine when to operate as well as when not to operate, but this was very difficult to do sometimes. There were some cases of tubal gestation that improved without operation, particularly those in which the fetus disintegrated. The hematocoele behind the uterus was well shut off above. One could not always make that out. Where it could be made out, those were the cases to be let alone and kept under observation. He recalled two cases of patients who recovered without any special trouble. There was no indication for operation, but there was need for close observation. Such patients should be in a hospital.

Doctor DORSETT stated that he had never made a diagnosis of extrauterine gestation before rupture except in one instance, and it was his fortune to have operated in sixty-four of these cases. Women did not go to physicians to be examined at regular intervals, and they suffered a good deal before they submitted to operation. This was particularly true in rural districts. There were two elements in connection with this question which must be considered. The first was that women did not present themselves for examination, and the second was that the country physician was not disposed to make very many vaginal examinations. The general practitioner in the city did not make very many of these examinations, so that his experience had been among that class of patients who had had rather definite symptoms of pelvic trouble, but he was free to say that he had done several of these operations without making a diagnosis of extrauterine gestation before operating. But the indications of trouble were sufficient to warrant him in opening the abdomen and finding out the cause of the trouble.

Fallacies in the Work of the Untrained Surgeon.—

Dr. C. S. PETTUS, of Eldorado, Ark., stated that the idea the public had of surgery was a stimulus to many that beckoned them on and caused them to conclude they had some surgical ability. For instance, a curettement was by them considered an operation. To do that they were under the impression it demanded as much surgical skill as to do an anastomosis. Such an idea of surgery was entertained by many doctors. This was the opinion of a certain physician who never did an operation and whose clinical experience extended to a school which graduated in three years. He lamented the fact that he had no infirmity to take surgical patients, as so many of his clientele wanted him to operate. The amount of surgery done throughout the country by those unprepared was surprising. He knew an undergraduate who had done several laparotomies, and had assured the public that he was thoroughly capable of doing all kinds of surgery. The development of surgery at the expense of human life was entirely too dear, and certainly something should be done by the profession to protect humanity from the dangers and mutilation at the hands of the untrained surgeon. The work of the unfit in surgery should be only a memory, and the purpose of honest, scientific surgeons was and should be the conservation of life and limb.

Dr. A. L. BLESSE, of Oklahoma City, said that unfortunately a great many men in America learned their surgery or specialty upon the human being independently of instruction under a master, forgetting the fact that much of the technical part of surgery, such as resecting or suturing the intestines, etc., could be learned equally well upon the dog or cadaver. He ventured to say that of the men doing surgery in the United States of America, not twenty-five per cent. had had that fundamental technical training which was so essential to a speedy, proper, and complete surgical operation, while fewer still had had any fundamental training in pathology, and their remarks at the operating table had no basis in the fundamental principle underlying all surgery, and that was pathology.

Dr. M. G. THOMPSON, of Hot Springs, Ark., stated that many times he had cases referred to him of tumors of the breast that he thought would become cancerous if they were not operated on. These patients had subsequently gone to the eclectic and to the homeopath who said that we were too anxious to operate on them; hence, great harm was done by the practitioners of these irregular schools who were educated to make their success by prejudice and by making false statements.

(To be concluded.)

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Ninth Annual Meeting, Held at Atlantic City, N. J., June 3, 1912.

The President, Dr. JOSEPH H. WHITE, in the Chair.

(Concluded from page 213.)

A Malarial Hotbed within Sight of the National Capitol.—Dr. THOMAS W. JACKSON, of Fort Washington, Md., desired to call attention to the continued existence of malaria within fifteen miles of Washington. The disease continued to prevail annually, but in a greatly diminished degree, owing to improved sanitary condition and the extermination of the mosquito. The medical phases were: 1. Advisability of quinine prophylaxis; 2, the duration of the treatment period; 3, the cause and percentage of recurrences; 4, the management of civilian cases occurring near military stations; 5, antimosquito. Quinine prophylaxis had been disappointing; practically a failure. It was a false and dangerous doctrine.

Dr. DAMASO RIVAS, of Philadelphia, said that his experience had been that it was very difficult to get patients to take the quinine faithfully, and that it was most efficacious to give it one hour after the temperature began to fall. They knew that at that time the parasite was very young, and was apt to take more quinine than it would later. The doses were about one half grain to seven and one half grains, always dissolved in hydrochloric acid. In regard to the recurrence of malaria, unquestionably these were attributable to bad management—i. e., giving quinine at the wrong time.

Dr. WILLIAM KRAUS, of Memphis, Tenn., about a year ago had a patient referred for the administration of salvarsan. On the day he arrived, he had a chill. The result of the salvarsan was partial disintegration of rings—pseudoautumnal form—and no subsequent paroxysm of this same fever. On the day following, however, the malaria became more active, but coincident with that there was the disappearance of parasites and since that time the patient had not had any further recurrence. It was possible that this remedy might have a differential effect, which is the very thing they had been unable to obtain with quinine.

Dr. CHARLES CRAIG, of Washington, D. C., was surprised that Doctor Jackson took so strong a stand about quinine prophylaxis. He did not think that it could be compared for a moment with mosquito extermination. Certainly, however, no one could doubt for a moment that quinine prophylaxis had had a great deal to do with the eradication of malaria. He believed Doctor Jackson's experience at Fort Washington was unfortunate. The speaker had had an experience at Fort Stoltzenburg which was the opposite. Stoltzenburg was supposed to have the worst record for malaria of any post in the United States Army. They tried every way they could to exterminate malaria, and finally started on a thorough quinine prophylaxis. They had the patients come to the hospital twice a week, and made them take it in the presence of an officer. When they did that, the numerical ratio went down over fifty per cent.

Dr. JOHN M. SWAN, of Rochester, N. Y., used to teach his students that it was necessary for them to administer quinine to their patients after their clinical recovery for at least two years. His reasons for teaching that was that he accepted the theory that the recurrences or relapses were due to parthenogenesis. There always seemed to him to be a parallel between this disease and another that he thought due to an animal parasite; namely, syphilis. They knew well that after the clinical manifestations of syphilis were got rid of, it was necessary to continue treatment for a long period to prevent tertiary symptoms. He believed the administration of quinine would probably prevent relapses. Referring to the diagnosis of unique carriers by means of the microscope, he would like to recall to their minds a case he reported in 1910. A patient who reported being perfectly well with a normal temperature and a normal picture in regard to red cells, differential leucocyte count, etc., in March, when there were no mosquitoes in the place, he had a case of a typical attack of malaria with the organisms in the blood. It was possible for a person with the parasites in the blood to present a perfectly normal blood picture until he relapsed.

Dr. JOSEPH H. WHITE felt that proper prophylaxis demanded not only the destruction of the mosquitoes and the destruction of the unique carriers, but also the use of quinine as a prophylaxis. Just one instance with regard to a unique carrier: Four years ago he was called up at midnight by a gentleman, and asked if he would not go to a certain town where, it was thought, there was a case of yellow fever. The speaker went, very much afraid of finding yellow fever, and looked the patient over carefully, but he could not say that he had malaria. He examined this man's blood for about an hour, taking two or three specimens, and got nothing. He went back and looked him over again, after being away two hours in the laboratory; found him with a rising temperature; took another specimen, and found organisms.

Doctor JACKSON did not by any means condemn quinine prophylaxis generally, except that it could not be substituted for mosquito work. As to the results at Camp Stoltzenburg, he believed that where a certain procedure could be carried out effectively, year after year, antimosquito work was far more effective. The principal objection to the widespread, indiscriminate use of quinine was that it undoubtedly vitiated blood diagnosis. Under those conditions, they might frequently be badly put about for a diagnosis, when the quinine taken had been sufficient to drive the parasite from the peripheral circulation. As to the reaction, he did not think that any of them were in a position to lay down a dogmatic length of time over which medicine should be given; but he thought they often made the period too short. He had little fear of the drug quinine; they could use it, without fear of injury, over a long period of time. Usually treatment was resumed and

blood researches were not kept up, and that was the very reason why there were recurrences year after year. He believed that the only guide was repeated examination of the blood.

Doctor CRAIG presented the following resolution:

Resolved, That the American Society of Tropical Medicine endorse the creation of a United States Commission for the Study and Prevention of Malaria.

Resolved further, That Congress be called upon to appropriate funds for this purpose.

These resolutions were duly seconded and carried.

Election of Officers.—The following were elected as officers for the ensuing year: President, Dr. Edward R. Stitt, of Washington, D. C.; first vice-president, Dr. Richard P. Strong, of Manila, P. I.; second vice-president, Dr. Creighton Wellman, of New Orleans; secretary, John M. Swan, of Rochester, N. Y.; assistant secretary, Dr. Allen J. Smith, of Philadelphia; treasurer, Dr. C. Lincoln Furbush, of Philadelphia.

The next meeting will be held in Washington, D. C., in May, 1913.

Letters to the Editor.

THE RIDEAL-WALKER TEST; A REPLY TO DOCTOR ANDERSON'S CRITICISM.

NEW YORK, January 27, 1913.

To the Editor:

In view of the recent appointment of the joint committee of the VIII International Congress of Applied Chemistry and the XV International Congress on Hygiene and Demography, with the object of formulating an international standard method of testing disinfectants, and in response to the request of a number of public health workers in this country, I feel it incumbent upon me to publish the following observations made by me in the course of the discussion on the paper read by my colleague, Dr. Samuel Rideal, at the VIII International Congress of Applied Chemistry, with the object of removing the misconception which would appear to have arisen out of Dr. John F. Anderson's wholly misleading criticism of the Rideal-Walker test.¹

"In Great Britain and her Colonies the test which Doctor Rideal and I introduced in 1903 has been officially adopted for a number of years; in South Africa for instance, it is used to assess the import duty on disinfectants, those with a Rideal-Walker coefficient under five being subject to an ad valorem duty of fifteen per cent., while those with a Rideal-Walker coefficient of five or over enter duty free. In this connection, the following extract from the report of the Medical Officer of Health for Cape Colony is of interest:

"Samples of disinfectants submitted by agents tendering for contracts to supply government departments, as well as samples from all consignments of unknown brands of disinfectants passing through the customs, continue to be examined by the Rideal-Walker test in the Public Health Laboratory.

"The majority of the higher grade disinfectants have shown a marked rise in the Rideal-Walker coefficient, and from the samples received from the controller of Customs it would appear that this Colony is no longer being made the dumping ground for worthless so called disinfectants, whose only resemblance to germicides consisted in their possessing a strong smell of coal tar and being able to produce an opaque emulsion when added to water."

"In this country the Rideal-Walker test has been adopted by one State and several cities; that it is not more widely used, I attribute to the misleading criticism to which it has been subjected by Doctor Anderson, whose indictment, published in the *Journal of Infectious Diseases*, contains the following five counts:

- "1. Lack of simplicity in technic.
- "2. Lack of definiteness in the proportion of culture added to the disinfectant.
- "3. Extensive latitude allowed in the temperature of medication.
- "4. Difficulty in manipulating the test tubes.

¹*Journal of Infectious Diseases*, January, 1911.

"5. Latitude allowed in determining the coefficient.

"With regard to 1, I may say that if there is any single feature which renders the Rideal-Walker test unique, it is its extreme simplicity, a fact which will be at once apparent to any unbiased worker.

"Professor Hewlett, of Kings College, London, the Milroy lecturer on Disinfection and Disinfectants, in referring to the test said: 'I think that all those who have had anything to do with this Rideal-Walker test must agree as to the beautiful simplicity of the method.'

"Two deals with what is termed 'lack of definiteness in the proportion of culture added to the disinfectant, a drop being a variable quantity.' No mention is made of the fact that this drop has for years past been standardized at 0.1 c. c. Reference to this fact will be found in Partridge's *Bacteriological Examination of Disinfectants*, published in 1907, also in Doctor Rideal's contribution to the proceedings of the British Pharmaceutical Congress held at Cambridge in 1910.

"That the 2° range of temperature which is provided for in the test, and to which Doctor Anderson takes exception in 3, is not excessive, is shown by his own experiments giving results of tests conducted at 15° to 25° C. From these experiments it will be found that a rise of 2° C. gives an advance in the coefficient of only 0.1, a figure which, it will be admitted, is well within the experimental error.

"The reply to 4 will be found in the answer to 1. At every stage of the test all manipulations are under the complete control of the worker.

"5. 'Latitude allowed in determining the coefficient' refers, I presume, to the interpretation of results. Three tables are set out—with two phenols, not one, as called for in the Rideal-Walker test—from which are taken ratios of the postulant and the control at 2.5, ten, and fifteen minutes, showing certain variations. The actual figures are 4.4, 5.5, and 5.9. I should like to point out what ought to have been within Doctor Anderson's knowledge, viz., that no such latitude is allowed in the Rideal-Walker test. Nowhere in the literature published in Europe or elsewhere will be found any test showing such latitude as Doctor Anderson suggests. Doctor Rideal and I have always contended that *time must be the constant*, and that if the phenol control shows life in 2.5 and five minutes only, uniformly consistent results are obtained. At the International Congress of Hygiene and Demography as far back as 1907, Doctor Rideal referred to the desired result in the phenol control as 'life in 2.5 and five minutes.' In an earlier paper by Sommerville and myself we emphasized the same point.²

"I have always found when investigating alleged discrepancies in results obtained by the Rideal-Walker method, that one or more of the conditions called for in the test have been ignored. In the case of the *Lancet* commission, for instance, the explanation was found to lie principally in the fact that the commissioners had been working with broth prepared from bullock's heart, instead of the Rideal-Walker Liebig broth, which had the effect of depressing the coefficient by about fifty per cent.

"In conclusion I would like to state that on my arrival in this country in January last, I placed these facts before Doctor Anderson, who, after expressing surprise that he should have overlooked the references produced by me, promised to take the earliest opportunity of correcting the wrong impression created in the paper published by him in the *Journal of Infectious Diseases*. Up to the present moment his promise is still unfulfilled, which is the more to be regretted in view of the fact that standardization of disinfectants has now attained international interest."

With every desire to avoid the *tu quoque*, I am constrained to say that the modification of the Rideal-Walker test put forward by Doctor Anderson as an improvement on the original, to quote from a recent article dealing with this subject, "marks a distinctly retrograde step."³ That no uniformity of result can be obtained by this method, I am prepared to demonstrate to any public health worker who may be sufficiently interested in this subject to desire further particulars.

J. T. AINSLIE WALKER, F. R. S. M., F. C. S.

²Public Health, March, 1906.

³Standardization of Disinfectants, *Medical Times*, October, 1912.

PERINEAL ENUCLEATION OF THE PROSTATE.

MERIDIAN, MISS., January 20, 1913.

To the Editor:

Regarding my article which appeared in your JOURNAL for December 14, 1912, entitled, Simple Perineal Enucleation of the Prostate Gland, several doctors have written to me asking about postoperative treatment and for reprints. I wish to say that the smaller the incision the better, and instead of introduction of the entire hand in some cases, all the fingers of the hand are formed into a cone and introduced as far as the thumb. Some cases may not require the introduction of the entire hand.

J. M. WHITE, M.D.

P. O. Box 48.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Course of Operative Surgery. A Handbook for Practitioners and Students. By Professor Dr. VICTOR SCHMIEDEN, Privatdozent of Surgery in the University of Berlin, Assistant in the Royal Surgical University Clinic. Second Enlarged Edition. With a Foreword by Professor Dr. A. BIER. Translated and Edited by ARTHUR TURNBULL, M.B., M.A., B.Sc., Demonstrator of Anatomy in the University of Glasgow. New York: William Wood & Co., 1912. Pp. xx-345. (Price, \$4.)

An English edition of Doctor Schmieden's book will be as gladly welcomed in this country as it has been in England. The book offers a marked contrast to the earlier books on operative surgery in that it suggests more the operating theatre than the dissecting room. Furthermore the operations of ligations, amputations, and resections which were described so much in detail in the earlier books have been given a secondary place here and have been superseded in prominence by the more modern operations such as those on the abdominal viscera, brain, spinal cord, etc. The great developments in surgical procedure are given full justice, and the student or practitioner who wishes to learn the most approved methods used by the surgeon of to-day will find this book of great value. All that is not essential to a clear description of the operative technic in question has been omitted so that the book is of convenient size. Those methods alone are described which the author has used or seen used in Doctor Bier's famous clinic in Berlin and which have shown themselves to be reliable and safe. The text is accompanied by 354 illustrations, unusually well done. Many of these represent sketches from dead and living subjects. The appearance of this second edition within two years testifies to the good reception of the book in Germany. There is every reason to believe that it will be used widely in English speaking countries, both as a textbook and a book of reference. The author has been broad minded enough to select the best methods from all countries and to give credit where it belonged. The result is that the book has an international character. The translator has succeeded well in his work. The English is idiomatic, and the descriptions are accurately reproduced.

Diseases of the Eye. By C. DEVEREUX MARSHALL, F.R.C.S., Surgeon to the Royal London (Moorfields) Ophthalmic Hospital and Ophthalmic Surgeon to the Victoria Hospital for Children, Chelsea. Fully Illustrated. London: University of London Press, 1912. American Agents, Oxford University Press, New York. Pp. xiii-303. (Price, \$3.75.)

Perhaps we expected too much from a writer of such high standing as Mr. Marshall when we began to read his book, but we laid it down with a sense of disappointment. It is another of the many attempts to compress a large subject into a small space, and has the faults common to this class of books, a very sketchy presentation of all matters, the omission of much that is valuable, and the elimination of the author's personality in the endeavor to be brief. Evidently the author has felt this, for he refers the reader in several places to larger works in regard to essential mat-

ters. Unfortunately it is just these essential matters concerning which the reader, whether student or general practitioner, is apt to desire information. The omission of details concerning the major operations on the eye may well be pardoned, if not indeed commended, on the ground that no textbook can teach the inexperienced how to perform them, and the portrayal of the exactitude and perfection of technic necessary for the successful performance of such operations is certainly to be praised as it will tend to cause the tyro to hesitate to try the adventure. Competent knowledge can be gained, exactly as he says, only by watching a competent surgeon, and by operating under his direction. But should the treatment of serious diseases be passed over lightly? Mr. Marshall says truly that antitoxine has done more to eliminate the terror of diphtheritic conjunctivitis than all other remedies combined. Would it not be better to give directions how to use this remedy than to tell how to make and apply an admittedly less efficient quinine lotion? Fresh cases of trachoma may well be treated in the manner described, but how about the old cases? Is nothing to be done to relieve them? Mention at least of some method of treatment would do no harm. Many more cases of heterophoria than of strabismus are to be seen in the course of a month's practice, yet they receive proportionately much less attention. The article on retinoscopy accords with the views generally held in this country, but some of us would question the equal normal activity of the ciliary muscle in myopia and hypermetropia, so that when this method gives us —6 D "the real lens the patient will see with ought to be —7, and if we again allow 1 D for the atropine his full correction will be —8." We are apt to find the accommodation pretty weak in myopia of this degree. Most of these faults are due to too great condensation, and it is a pity that so good a writer was confined to such narrow limits. The chapters on sympathetic ophthalmitis and color blindness are particularly good. The publishers have done their part well in the choice of excellent type and of a tasteful binding.

A System of Clinical Medicine Dealing with the Diagnosis, Prognosis, and Treatment of Disease. For Students and Practitioners. By THOMAS DIXON SAVILL, M. D., Lond. Third Edition. Thoroughly Revised. New York: William Wood & Co., 1912. Pp. xxvii-942. (Price, \$7.)

Not quite two years have passed since the second edition of this excellent work appeared (see JOURNAL for April 16, 1910). In the present edition the arrangement and scheme of the book have in no way been altered. The book has been carefully revised and, although much new matter has been added, the size of the volume remains the same. Among the additions may be mentioned acute pulmonary edema, family congenital cholemia, aplastic anemia, serum disease, multiple myeloma, psittacosis, enterogenous cyanosis, and atrophic spinal paralysis of infants.

An Introduction to the Study of Infection and Immunity. Including Chapters on Serum Therapy, Vaccine Therapy, Chemotherapy, and Serum Diagnosis. For Students and Practitioners. By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons, etc. Illustrated. Philadelphia and New York: Lea & Febiger, 1912. Pp. x-301.

Inasmuch as the subjects discussed in this work have in past years acquired a very important position in medicine Doctor Simon has done the profession a favor in writing this book. Immunity is a topic that is inherently difficult to understand, as it is based largely upon hypothetical deductions. Add to that the complicated nomenclature, and the result is such that most men carefully avoid any attempt to study the matter. Doctor Simon has started with the simplest conditions and has explained most clearly, so that the more difficult parts can be quite readily grasped. The chapter on active immunization both for prophylactic and therapeutic purposes is good. It is interesting to note that in the determination of the number of bacteria in a given vaccine by counting against the red cells, the author states that the method has no claims to accuracy. This book is one that can be highly recommended, not only to the laboratory worker, but to the general practitioner who wants a clear and readable exposition of this field of medicine.

Hygiene for the Worker. By WILLIAM H. TOLMAN, Ph. D., Director of the American Museum of Safety, New York, and AELAIDE WOOD GUTHRIE, Department of Research, American Museum of Safety. Edited by C. WARD CRAMPTON, M. D., Director of Physical Training, Department of Education, New York City. New York, Cincinnati, and Chicago: American Book Company, 1912. Pp. vii-231.

This comparatively small book contains more common sense and practical information than is present in many larger works. The advice is good, is clearly expressed, and makes no demands upon the individual that cannot be readily satisfied. There seems to be nothing overlooked, and the brief summary at the end of each chapter is a very good way of impressing upon the reader the valuable points that have been discussed. One of the most pleasing features is the moderate tone that is taken throughout. No extreme statements are made in order to support a point, this being particularly noticeable in the chapter on alcohol and tobacco. No moral side is brought forward, but there is a clear and dispassionate presentation of facts showing the harm that can be directly traced to the use of these substances. This book should be placed in the hands of all boys and girls who are about to begin self supporting work. It is also valuable to those who deal with labor directly, as employers, indirectly as physicians, and to all others interested in the welfare of humanity.

Meetings of Local Medical Societies.

MONDAY, February 3d.—German Medical Society of the City of New York; Clinical Society of the New York Nose, Throat, and Lung Hospital; Utica Medical Library Association; Niagara Falls Academy of Medicine; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society; Brooklyn Hospital Club; Roswell Park Medical Club, Buffalo; Hornell Medical and Surgical Association.

TUESDAY, February 4th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Buffalo Academy of Medicine (Section in Surgery); Ogdensburgh Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Hudson County, N. J., Medical Association (Jersey City); Medical Association of Troy and Vicinity; Long Island Medical Society; Bridgeport, Conn., Medical Association; Society of Alumni of Lebanon Hospital, New York; Lockport Academy of Medicine; Amsterdam City Medical Society.

WEDNESDAY, February 5th.—Bronx Medical Association; Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Elmira Academy of Medicine; Schenectady Academy of Medicine.

THURSDAY, February 6th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva, N. Y., Medical Society; Dansville, N. Y., Medical Association.

FRIDAY, February 7th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

SATURDAY, February 8th.—Therapeutic Club, New York.

Official News.

United States Public Health Service:

Official list of changes of stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 22, 1913:

Banks, C. E., Senior Surgeon. Granted fifteen days' leave of absence, on account of sickness, from date of departure from station. Brecht, N. D., Assistant Surgeon. Relieved from duty at the Marine Hospital, San

Francisco, Cal., and directed to report to the medical officer in command, San Francisco Quarantine station, Angel Island, Cal., for duty and assignment to quarters. **Clark, T.**, Surgeon. Granted seven days' leave of absence en route to station. **Guthrie, M. C.**, Passed Assistant Surgeon. Directed to proceed to Washington, D. C., for conference regarding Indian investigation. **Hough, J. Spencer**, Acting Assistant Surgeon. Granted nine days' leave of absence, on account of sickness, from November 26, 1912. **Hurley, J. R.**, Passed Assistant Surgeon. Relieved from duty at the Immigration Station, Angel Island, Cal., and directed to report to the medical officer in command, Marine Hospital, San Francisco, Cal., for duty and assignment to quarters. **Kolb, L.**, Assistant Surgeon. Granted seven days' leave of absence from January 15, 1913. **Oakley, J. H.**, Surgeon. Granted three days' leave of absence from January 18, 1913. **Richter, H. C.**, Acting Assistant Surgeon. Granted thirty days' extension of annual leave, on account of sickness, from October 23, 1912, and forty days' leave of absence, without pay, from November 22, 1912. **Rodman, J. C.**, Acting Assistant Surgeon. Granted three days' leave of absence, without pay, from January 14, 1913. **Spratt, R. D.**, Passed Assistant Surgeon. Granted one month's leave of absence from January 22, 1913. **Warner, H. J.**, Passed Assistant Surgeon. Granted seven days' leave of absence from January 19, 1913. **White, J. H.**, Surgeon. Granted four days' leave of absence from January 12, 1913, under paragraph 189, Service Regulations.

Boards Convened.

Board of medical officers convened to meet at the Revenue Cutter School of Instruction, Fort Trumbull, New London, Conn., as soon as practicable, for the physical examination of certain cadet engineers of the Revenue Cutter Service to determine their fitness for promotion to the grade of third lieutenant of engineers. Detail for the board: Passed Assistant Surgeon H. J. Warner, chairman; Acting Assistant Surgeon J. G. Stanton, recorder.

Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending January 25, 1913:

Archer, W. M., Jr., First Lieutenant, Medical Reserve Corps. Leave of absence extended ten days. **Blanchard, R. M.**, Major, Medical Corps. Left Fort Sheridan, Ill., on January 21st, for duty at Fort Strong, Mass. **Connolly, P. B.**, Lieutenant, Medical Corps. Returned to Fort McPherson, Ga., on January 19th, from detached duty at Fort Morgan, Ala., and will accompany troops to San Francisco, Cal. **Dailey, M. A.**, Lieutenant, Medical Corps. Relieved from duty at Fort Sheridan, Ill., and ordered to Fort Bliss, Texas. **Duncan, W. A.**, Captain, Medical Corps. Ordered to proceed to Fort McPherson, Ga., Fort Oglethorpe, Ga., Army and Navy General Hospital, Hot Springs, Ark., and Fort Wayne, Mich., to install x ray machines. **Duval, D. F.**, Major, Medical Corps. Returned to Fort Benjamin Harrison, Ind., on January 19th, from leave of absence. **Foley, F. M.**, Lieutenant, Medical Corps. Reports arrival at Washington, D. C., on January 22d, on forty-five days' leave of absence. **Holland, J. H.**, Lieutenant, Medical Corps. Granted two months' and fifteen days' leave of absence, from January 14th, before sailing to the Philippines. **Meehan, J. W.**, Lieutenant, Medical Corps. Granted ten days' leave of absence from January 19th. **Mudd, Leo C.**, Lieutenant, Medical Corps. Leave of absence extended ten days. **Weston, H. R.**, Lieutenant, Medical Corps. Granted leave of absence for fifteen days before sailing for the Philippines.

Births, Marriages, and Deaths.

Married.

Baker—McKee.—In Vallejo, Cal., on Tuesday, January 14th, Surgeon Myron C. Baker, United States Navy, and Miss Helen McKee. **Coghlan—Guerin.**—In New

York, on Wednesday, January 15th, Dr. John Nicholas Coghlan, of Portland, Ore., and Miss Helen Guerin. **Davis—Watt.**—In Lancaster, Pa., on Tuesday, January 21st, Dr. Henry Blaine Davis and Miss Annie Slater Watt. **McNeil—Babbitt.**—In Ashtabula, Ohio, on Tuesday, January 14th, Dr. Charles A. McNeil, of Erie, Pa., and Miss Margery Babbitt. **Muhlenberg—Miller.**—In Reading, Pa., on Wednesday, January 22d, Dr. Hiester H. Muhlenberg and Miss Anna Miller. **Strait—Connor.**—In Memphis, Tenn., on Wednesday, January 15th, Dr. Claude M. Strait, of Birta, Ark., and Miss Ruby Connors.

Died.

Abdelal.—In Kansas City, Mo., on Saturday, January 25th, Dr. Alfred G. Abdelal, aged eighty years. **Allen.**—In Philadelphia, on Sunday, January 19th, Dr. Richard Allen, aged eighty-four years. **Ames.**—In Springfield, Mass., on Saturday, January 25th, Dr. Robert P. M. Ames, aged fifty-six years. **Bell.**—In Ellwood City, Pa., on Thursday, January 16th, Dr. S. M. Bell, aged sixty-five years. **Black.**—In Calais, Me., on Tuesday, January 14th, Dr. William T. Black, aged eighty-two years. **Braman.**—In Dade City, Fla., on Wednesday, January 15th, Dr. Francis Nelson Braman, of New London, Conn., aged seventy-five years. **Chase.**—In Dedham, Mass., on Saturday, January 18th, Dr. John Winslow Chase, aged seventy-three years. **Dearborn.**—In London, Ontario, on Sunday, January 19th, Dr. Reuben Fletcher Dearborn, of Lynn, Mass., aged sixty-two years. **Edwards.**—In Grand Rapids, Mich., on Saturday, January 18th, Dr. Eliphalet G. Edwards, aged seventy-nine years. **Emery.**—In Spokane, Wash., on Tuesday, January 14th, Dr. Horace J. Emery, aged fifty-four years. **Hale.**—In Syracuse, N. Y., on Monday, January 20th, Dr. Colwell D. Hale, aged seventy-one years. **Hayes.**—In Brownsville Junction, Me., on Tuesday, January 21st, Dr. Daniel William Hayes. **Holman.**—In Philadelphia, on Tuesday, January 21st, Dr. William A. Holman, aged seventy-six years. **Johnson.**—In Amsterdam, N. Y., on Monday, January 20th, Dr. Richard G. Johnson, aged fifty-four years. **Lewis.**—In Alliance, Ohio, on Thursday, January 16th, Dr. John V. Lewis, aged seventy-seven years. **McElroy.**—In Decatur, Ill., on Wednesday, January 15th, Dr. A. J. McElroy, aged eighty-six years. **Mead.**—In Vineyard Haven, Mass., on Saturday, January 18th, Dr. Frank W. Mead, United States Public Health Service, aged seventy-four years. **Morrison.**—In Somerville, N. J., on Wednesday, January 22d, Dr. John Morrison, of New York, aged sixty-two years. **Mudd.**—In St. Charles, Mo., on Tuesday, January 14th, Dr. James R. Mudd, aged sixty-seven years. **Palmer.**—In Brooklyn, N. Y., on Monday, January 20th, Dr. Ernest Palmer, aged sixty-two years. **Petrie.**—In Philadelphia, on Thursday, January 23d, Dr. James Alexander Petrie, aged seventy years. **Price.**—In Vienna, Md., on Wednesday, January 15th, Dr. Robert J. Price, aged seventy-three years. **Rabe.**—In Dwight, Ill., on Monday, January 13th, Dr. William Louis Rabe, aged seventy-four years. **Reynolds.**—In Hayward, Cal., on Saturday, January 11th, Dr. George Edmund Reynolds, aged fifty-six years. **Riggs.**—In Moundsville, W. Va., on Wednesday, January 15th, Dr. Leroy S. Riggs, of Wheeling, aged fifty-two years. **Robertson.**—In Litchfield, Minn., on Monday, January 13th, Dr. James W. Robertson. **Ross.**—In Ambridge, Pa., on Monday, January 20th, Dr. Daniel C. Ross, aged thirty years. **Stevenson.**—In New York, on Wednesday, January 22d, Dr. Clinton Stevenson, aged forty-seven years. **Sturtevant.**—In Hyde Park, Mass., on Sunday, January 19th, Dr. Charles Sturtevant, aged seventy-three years. **Talbot.**—In Nashville, Tenn., on Sunday, January 12th, Dr. John Boyd Talbot, aged eighty-one years. **Wadsworth.**—In New York, on Monday, January 20th, Dr. Sarah Josephine Wadsworth, of Maplewood, N. J., aged seventy-one years. **Wilkinson.**—In Baltimore, Md., on Tuesday, January 21st, Dr. Guilford Dudley Wilkinson, aged seventy-seven years. **Wood.**—In Lexington, Tenn., on Thursday, January 16th, Dr. W. Riley Wood, aged sixty-two years.

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THE DOUBLE FUNCTION OF FATS AND CARBOHYDRATES IN NUTRITION AND THEIR DIFFERENT NUTRITIVE PROPERTIES.*

By HENRY DWIGHT CHAPIN, M. D.,
New York.

CALORIC METHOD OF FOOD VALUATION.

In nearly all textbooks and articles on nutrition, fats and carbohydrates are classed as foods whose function is merely to supply heat and energy. It is customary to express their nutritive value in calories, a calorie¹ being the quantity of heat required to raise the temperature of one litre of water one degree centigrade. To determine the caloric value of a fat or carbohydrate a definite quantity of the material to be valued is burned with oxygen in a vessel surrounded by a known amount of water, and from the rise in temperature of this water the number of calories the fat or carbohydrate yielded may be readily calculated. Numerous experiments have shown that one ounce of fat yields about 280 calories and one ounce of carbohydrates 120 calories.

In calculating human dietaries it has become a common practice to work out the number of calories the different components of a feeding will furnish and by adding them together to determine the nutritive value of the feeding or food, on the assumption that the nutritive value of the different food elements and foods varies directly with the amount of heat they will yield when burned outside of the body; and attempts have been made to work out tables for practical feeding on the basis of a certain number of calories for a certain amount of body weight.

BODY HEAT A BY PRODUCT.

If the animal organism demanded food primarily for the heat it would yield, and the stomach was a furnace in which the food was burned to produce this heat, the method of valuing foods by their heats of combustion would probably be useful and

exceedingly accurate. But food is not used in this manner. It must be digested, assimilated, and carried to the muscles, organs, and tissues before it can be of value to the body or burned. It has never been shown that the animal organism uses heat derived from the food, except to maintain body temperature, and in summer and in hot countries little or no food at all would be needed for this purpose. Yet food is required under such conditions. An infant needs just as much breast milk in the tropics as elsewhere, and the heat produced by the burning of the fats and carbohydrates of forty-eight ounces of breast milk would be enough to raise the temperature of a twenty pound infant to the boiling point of water. But no such result follows, for the heat above that needed to maintain body temperature—which in hot weather may be *all* that is produced—is excreted.

The production of so much heat from the breast milk simply for the purpose of excreting it, would be an exceedingly wasteful process and not in accordance with Nature's usually economical methods. Again, if the food requirements of the animal body are determined by the amount of heat excreted, which results from the burning of the food, how can growth which is a storing up of unburned food take place? It is evident, then, that the demands of the body for fats and carbohydrates are not primarily for the heat they will yield, and that the heat excreted is not a measure of the food needed for growth.

BODY HEAT PRODUCED BY EXPENDITURE OF ENERGY.

In this connection experiments made by Benedict and Carpenter with groups of men in calorimeter tests are highly instructive and suggestive. The consumption of oxygen and the production of heat or calories when men were sleeping, awake and sitting up, standing up, and when making severe muscular exertions were determined and are shown in Table I.

TABLE I.

	Average body weight, Kgms.	Oxygen absorbed grammes, per hour.	Heat produced, calories.
Men at rest, sleeping.....	66.6	21	71
Men at rest, awake, sitting up.....	64.5	27	97
Men at rest, standing (calculated)...	64.5	31	114
Men at very severe muscular exercise (calculated)	64.5	213	653

During sleep, when there is a suspension of external activity and the heart, lungs, and digestive organs, if they contain food, only are at work, heat production is at a minimum. When the men are awake and sitting up or standing, more muscles are brought into activity and heat production increases

*Read before the Pediatric Section of the New York Academy of Medicine, December 12, 1912.

¹It does not seem to be generally understood that there is a great difference in the significance of the term calorie when used by chemists and by dietitians. The latter calorie means the amount of heat required to raise the temperature of one litre (1,000 grammes) of water one degree centigrade; calorie to the chemists represents merely the amount of heat required to raise the temperature of one gramme of water one degree centigrade. Thus, the value of the dietitian's calorie is 1,000 times greater than the chemist's calorie. A confusion in medical writing has resulted from an inexact use of this term. Throughout this article the dietitian's calorie is meant.

proportionately. When severe muscular exertions are made, heat production increases at a tremendous rate, being over nine times as great as during sleep.

HEAT PRODUCTION NOT DEPENDENT ON SIZE OF BODY.

From the figures given it is apparent, then, that the heat or calories produced in the body does not depend upon its size or weight, but upon the amount of activity of the body or its organs. Activity depends upon the expenditure of energy, and this may be either mechanical or chemical. The motions of the muscles use mechanical energy. When the food is digested the changes from one form to another form call for chemical energy. The energy of the body is derived from the combination of the oxygen of the air with the assimilated fat and carbohydrates and a part of the proteins of the food. When energy is expended in the body it is changed into heat and then becomes a waste product which must be excreted. This fact explains why there is such a great increase in heat production when there is much physical activity.

The energy content of a food cannot be determined or measured directly, but as the expenditure of a definite amount of energy always liberates a definite quantity of heat, potential energy can be measured indirectly by the heat of combustion of the food.

DIGESTION OF FOOD LIBERATES HEAT.

Heat production is at the lowest point during sleep with an empty stomach, when little energy is being expended. When a meal is taken, expenditure of energy is required for its digestion and the production of heat increases. The amount of heat produced during digestion and assimilation depends directly upon the digestibility of the food, that is, upon the amount of energy needed to bring about its digestion. Easily digested food causes little expenditure of energy for digestion, while food that is digested with difficulty calls for much energy with a consequent high heat production.

To illustrate the point in calories, suppose two specimens of food when burned in a calorimeter yield 1,000 calories each. From the caloric standpoint they are equal in nutritive value. However, before they can be burned in the body they must be digested and assimilated, and it may be found that the digestion of one of the foods calls for an expenditure of energy equal to 100 calories, and that 700 calories of energy are used in the digestion and assimilation of the other food. Therefore, when the two foods are ready for use in the tissues, one has a net value of 900 calories, and the other of 300 calories. Armsby (2) has shown that some materials that are eaten as foods actually have no nutritive value because the energy required for their digestion is greater than the energy they contain, and that the digestion of some foods causes the production of more heat than they themselves will produce when burned outside of the body. Such foods will cause starvation sooner than no food, because some of the body tissue has to be used to furnish energy to carry on the work of digestion, the food itself not containing enough energy to insure its digestion.

GROSS AND NET CALORIC FOOD VALUES.

Zuntz (3), in Germany, made some experiments to determine the amount of energy required for the chewing of different foods having practically the same nominal caloric values, with the following results:

1 pound hay	76	calories
Green fodder equal to one pound of hay.....	47	calories
1 pound oats	21	calories
1 pound corn	6½	calories

To quote Jordan (3): "This author goes further and calculates that the work of mastication and digestion combined is forty-eight per cent. of the energy value of the digested material of hay, and 19.7 per cent. of that from oats. . . . If we wish to ascertain the comparative energy worth of two unlike rations, it would obviously be incorrect to multiply the total quantities of protein, carbohydrates, and fats in each by the unit heat values in order to ascertain the relative energy gain to the animal body. We may define *available* energy as total energy minus that which is lost in the excreta and in gases which escape, and *net* energy as available energy minus the cost of digestion and of preparing the food for use."

PHYSIOLOGICAL FOOD VALUE AND CALORIC VALUE NOT IDENTICAL.

It has been often observed that small quantities of some forms of food were more nutritious in practice than larger quantities of other forms of food which theoretically had the same nutritive value, i. e., yielded the same number of calories. It has been demonstrated on a large scale with groups of animals, covering several generations, at the Wisconsin Agricultural Experiment Station (4), that equal quantities of protein, fats, carbohydrates, and calories from different sources, all digestible, differ markedly in their practical nutritive values. The differences in growth and vigor produced in several generations of cows, by equal quantities of protein and calories derived from wheat, oats, and corn plants, are truly remarkable, but an inkling of the cause for these differences may be gained by a glance at the table giving the different amounts of energy expended in digestion of hay, oats, and corn, which shows that these foods differ in net nutritive value. In the course of a year or of several years these differences would be appreciable, although they may not account for all of the differences observed. To quote Hart, McCollum, Steenbock, and Humphrey (4), who conducted the experiments: "There is evidence from the data that there is a distinct and important physiological value to a ration not measurable by present chemical methods or dependent upon mere supply of available energy. While the latter are important and give valuable data for a starting point, they are, nevertheless, inadequate as final criteria of the nutritive value of a feed."

FOOD NEEDED FOR GROWTH NOT SHOWN BY HEAT PRODUCED IN BODY.

Growth consists of an increase of the number of cells of the body, and as each new cell contains fat and carbohydrates, there must be more of these substances in the food than the heat excreted shows

has been burned, or growth cannot take place. Therefore the heat excreted cannot be used as a standard for determining the quantity of fats and carbohydrates needed in the food when growth is taking place. Gain in weight shows that the food contains more energy food than is being used up, and that the excess is being stored up in new cells or as body fat.

BODY HEAT PRODUCED ONLY BY EXPENDITURE OF ENERGY.

In Table 1, it is shown that with an increase in bodily activity there is a rapid increase in heat production, and also that the quantity of oxygen absorbed increases at about the same rate. This oxygen is obtained from the air, which is about one fifth oxygen. The blood takes up the oxygen in the lungs and carries it to the tissues, where it combines with the fats and carbohydrates and produces heat *only when there is an expenditure of energy*. The familiar sight of men swinging their arms on a cold day to warm themselves is a practical illustration of the fact that the production of body heat or calories varies directly with the amount of energy expended and that heat is a secondary product. On a cold day the body feels the need of more heat, but it is not provided, although the materials needed to produce it are present and available, which is convincing evidence that heat is not produced in the body from food in the same manner as it is when food is burned outside the body to determine its caloric value.

Bodily activity rapidly depletes the stored up carbohydrates, and when these are used up the body fat is drawn upon, while there is practically no increase of excretion of protein wastes, which shows that carbohydrates and fats are primarily suppliers of energy and secondarily of heat.

Ostwald (7) makes the following statements: "Chemical processes are the source of the energy which all living things, plants as well as animals, require for the maintenance of life. . . . Heat is a kind of energy. It is distinguished by the property that it is produced with special ease from the other forms of energy. When any chemical reaction occurs, the substances which are produced have, in general, a different energy from the original ones, and the difference of the two amounts appears as *heat*, if, as is not difficult, the production of other forms of energy be avoided. *Heat is developed if the energy of the products is smaller than that of the initial substances.* . . . The amounts of heat given out and taken in are a measure of the *changes of energy* connected with chemical processes. There is a whole branch of scientific chemistry, known as thermochemistry, which has the study of these relations for its object."

In writing chemical equations in thermochemistry the amount of heat produced is always taken into consideration. For instance, 2 grammes hydrogen + 16 grammes oxygen = 18 grammes water + 67 calories. Water thus has less energy content than the hydrogen and oxygen that compose it possessed. Carbon, when oxidized, gives off heat, and the carbon dioxide exhaled from the lungs contains less energy than the carbon of the fats and carbohydrates contained. It is thus easy to see that it is

the energy content of these foodstuffs, and not their heat, that is utilized by the body.

PRODUCTION OF METABOLIC WATER FROM FATS AND CARBOHYDRATES.

In considering the function of fats and carbohydrates in nutrition, it has been customary to stop at this point, but Babcock (5) has recently shown that they have another function, equally important, which is to supply water to the cells in a manner that controls cell nutrition and growth. To understand this function, a study of what takes place when fats and carbohydrates are utilized in the cells will be necessary.

The principal carbohydrates used in animal nutrition are cellulose, starch, glycogen, cane sugar, milk sugar, dextrin, and maltose. Cellulose, starch, and glycogen are practically insoluble in water. The others are all soluble. All are composed of carbon, hydrogen, and oxygen, and the following table shows the chemical formulas for these substances as they are generally written, and also their relative composition when on a common carbon content basis.

Chemical formula.		Common carbon content basis.	
		Carbon.	Water.
Cellulose	}	$= C_6H_{10}O_6 = C_{12}H_{20}O_{10} = C_{12} + (H_2O)_{10}$	
Starch			
Glycogen			
Dextrin			
Cane sugar	}	$= C_{12}H_{22}O_{11} = C_{12}H_{22}O_{11} = C_{12} + (H_2O)_{11}$	
Maltose			
Milk sugar	}	$= C_6H_{12}O_6 = C_{12}H_{24}O_{12} = C_{12} + (H_2O)_{12}$	
Dextrose or Glucose			

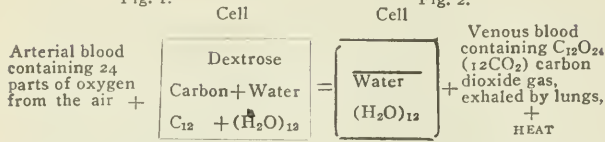
When two parts of hydrogen combine chemically with one part of oxygen, the two elements neutralize each other and form water, H_2O . The carbohydrates, therefore, when reduced to a common carbon content basis, on the principle of the common denominator in fractions, consist of twelve parts of carbon united with ten, eleven, or twelve parts of water. Digestion of carbohydrates consists in converting them into dextrose, the sugar of the blood, and this is brought about by the digestive enzymes adding two parts of water to cellulose, starch, glycogen, and dextrin; and one part of water to cane sugar, maltose, and milk sugar. The assimilation of carbohydrates consists of converting into glycogen, which is insoluble, the portions not needed for immediate use, and the process consists of removing two part of water from dextrose. The methods of producing nutrition and growth consist essentially of hydration and dehydration.

PRODUCTION OF METABOLIC WATER FROM CARBOHYDRATES.

As the hydrogen and oxygen are present in carbohydrates in the proportions that neutralize each other and form water, the carbon is the only portion of the carbohydrates which can combine with the oxygen from the air and be available as an energy producer.

To make clear what takes place when the carbon of the carbohydrates is used to supply energy, let Fig. 1 represent a cell containing dextrose before oxygen has been brought to it by the arterial blood, and Fig. 2 the cell after it has been oxygenated and the dextrose used to supply energy.

PRODUCTION OF METABOLIC WATER FROM CARBOHYDRATES.
Fig. 1.

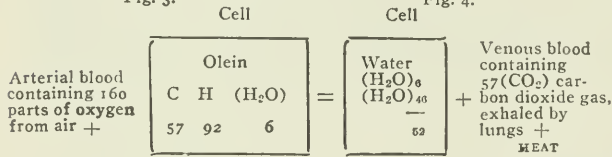


It will be seen that the oxygen combines with the carbon and both pass out of the cell as a gas, leaving behind the water of the carbohydrate.

PRODUCTION OF METABOLIC WATER FROM FAT.

Edible fats are much alike in composition, and for purposes of illustration may be typified by olein, $C_{57}H_{104}O_6$, or as when arranged to show the available energy producers, $C_{57}H_{92}(H_2O)_6$. What takes place when this fat is completely oxidized in the cell is shown in Figs. 3 and 4.

PRODUCTION OF METABOLIC WATER FROM FAT.
Fig. 3.



Fats and carbohydrates when oxidized in the cells are both changed into carbon dioxide gas and water, the water in the case of the carbohydrates being about two thirds of the weight of the carbohydrates, while in the case of fats the water produced weighs more than the original fat. But there is also a difference between fats and carbohydrates in the way this water is produced. In the carbohydrates it is merely split off from the carbon, while in the case of fats it is actually produced in the cells by the oxidation of hydrogen of the fat. As energy producers fats and carbohydrates are interchangeable in certain proportions, but as water producers in the cells they have unlike properties.

CELL NUTRITION AND GROWTH DEPEND UPON METABOLIC WATER.

Babcock (5) calls the water thus chemically produced from the food metabolic water, and shows that its function is to cause growth and a flow of nutriment from the blood to the cells instead of from the cells to the blood. If cells are to obtain nourishment from the blood by osmosis, the cell contents must be of less concentration than the blood, or the soluble contents of the cells would flow to the blood and the cells would be starved. When dextrose or fat is oxidized in the cells, the carbon is removed as a gas and the water split off from the carbon of the dextrose, or produced by oxidation of the hydrogen of fat, is left behind to dilute the cell contents. The blood is now more concentrated than the cell fluids and its nutriment flows toward the cell. The greater the difference between the concentration of the cell fluids and the blood, the more rapid will be the osmotic flow toward the more dilute fluid. As fats, when oxidized in the cells, dilute the cell contents almost twice as much as the same quantity of carbohydrates and thus stimulate a more rapid flow of nutriment to the cells, it is not difficult to see why codliver oil, butter, and cream are so useful in tuberculosis as

reconstructives. They are not needed for their energy content, because patients needing these foods are not abnormally active and are kept as quiet as possible to reduce the output of energy.

MILK FAT AS A PRODUCER OF METABOLIC WATER.

In infancy there is little demand for energy to be used externally. Infants sleep most of the time, when, as is shown in Table 1, caloric requirements are lowest, yet all milks contain fat which has high caloric value. In cow's milk, containing four per cent. fat and five per cent. carbohydrates, two thirds of the caloric value lies in the fat and one third in the carbohydrates. Fifty ounces of this milk will yield two ounces of fat and two and one half ounces of sugar. The fat will produce over two ounces of metabolic water to dilute the cell fluids, and the sugar about one and one half ounce of metabolic water.

While a chick is developing inside the egg shell it is not expending energy through bodily activity, and its body heat is maintained by the hen or incubator. It, therefore, needs little food to meet its energy and heat demands. Yet the yolk of hens' eggs contains nearly twenty-three per cent. fat, but no carbohydrates, and the fat contains less carbon than other fats (Hammersten) (6). Tangle "found the chemical energy necessary for the development of one gramme of ripe or nearly ripe hen's embryo (Plymouth egg) was equal to 658 (small) calories. This energy originated chiefly from the fat."

When it is remembered that growth consists of enlargement and division of the cells, which calls for rapid assimilation of nutriment, it will be seen that a substance with great capacity for producing metabolic water and thus causing a rapid flow of nutriment to the cells would be just what was needed in milk and eggs. It is supplied as fat.

METABOLIC WATER ALL THAT SOME ANIMALS REQUIRE.

The metabolic water derived from the food is all some animals require or ever get. Babcock (5) has shown that the imbibed water of other animals is needed mostly as a vehicle to carry off surplus heat by changing it into latent heat when the amount of heat produced is too great to be removed by radiation, and for protein wastes when they are in a soluble form, as urea. To quote Babcock (5):

Serpents and other reptiles that live in arid regions and rarely if ever have access to water, except that contained in their food, are said by Vauquelin to excrete all of the waste nitrogen as salts of uric acid. The same is true of birds that live on desert islands where only salt water is available. It is essential that animals of these types should produce as much metabolic water as possible from assimilated food, and the waste of water through the excretion should be reduced to a minimum. Since the food is largely protein both of these ends are attained by the excretion of uric acid which contains the least hydrogen of any nitrogenous substance excreted by animals, so that the maximum amount of metabolic water has been derived from the food consumed. Uric acid and its salts, however, are practically insoluble in water and may be voided in solid condition, thereby conserving large quantities of water for other purposes that would be lost if the excreted product were soluble in water as is the case with urea. . . . Many animals that excrete uric acid instead of urea never have access to water and subsist in every stage of their development upon air dried food which usually contains less than ten per cent. water. . . . Mice will live for months upon air dried grain containing about ten per

cent. of moisture and under these conditions will give birth to young. . . . I once knew of a hen that lived for six weeks without a particle of food or a drop of water and although extremely emaciated and weak when discovered, she quickly regained her strength and weight and was soon apparently as well as ever. . . . Hibernating animals, which subsist chiefly upon stored body fat, and in which protein metabolism is reduced to a minimum, go for several months without food or water, metabolic water being ample for all their needs. . . . Metabolic water derived from the oxidation of organic nutrients would probably be sufficient for all animal needs were it not for the elimination of poisonous substances resulting from protein degeneration.

SUMMARY.

Fats and carbohydrates serve two distinct purposes in nutrition which are equally important: They furnish energy which, when expended, liberates heat, and they also supply water to the cells in such a manner that it dilutes the cell contents and reduces their osmotic pressure so as to produce an automatic flow of nutriment to them from the more concentrated blood as soon as it is needed.

Fats are more effective producers of metabolic water than carbohydrates. Metabolic water produced from fats weighs more than the original fat and results from a combination of the hydrogen of the fat with oxygen from the blood. Metabolic water derived from carbohydrates is a residual product obtained by splitting the carbohydrate, and weighs about two thirds as much as the original carbohydrate.

In milk, the natural food of rapidly growing young animals, which require much metabolic water to promote cell nutrition, fat supplies the greater part of the metabolic water. In hen's eggs it supplies practically all of it.

The amount of heat or the number of calories excreted is a measure of the food that is being burned, but does not show how much is needed for growth. The energy or caloric need of the body does not depend upon its size or weight, but upon its activity. The number of calories a food will yield is not an indication of its nutritive value.

The caloric requirements of the body to maintain it intact depend upon the amount of energy expended. The number of calories the food, which is to supply these requirements, should yield, depends upon its caloric value after deducting the number of calories needed for its digestion and assimilation. The amount of energy needed for digesting a food depends largely upon its physical condition.

PRACTICAL OBSERVATIONS.

It is quite evident that an overemphasis has been placed upon the caloric values of foods, particularly as far as the nutrition of the infant and growing child are concerned. Infants need little food for its energy, except as this is expended in digestion and assimilation of food. Their natural food is highly specialized in composition and in digestive properties and is peculiarly suited to them. Milks of various animals vary in composition and digestive properties directly with the variation in type of the animal. A proper estimation of foods, in a last analysis, depends upon digestive suitability and capacity to produce true growth and proper development.

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51 WEST FIFTY-FIRST STREET.

THE RELATION OF SCOLIOSIS TO SCHOOL SEATING.*

BY JAMES WARREN SEVER, M. D.,
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I wish to speak on the relation of the occurrence of lateral curvature and round shoulders, beside other bad or faulty anteroposterior positions to the school life of children, together with certain conditions which may increase these abnormal postures.

When you realize that at present about twenty per cent. of the total population of the United States spends from three to five hours a day in school, and that this percentage is likely to be higher than lower with the increase in the extensions of the public school system, the responsibility of the proper care and supervision of this enormous number of children is great.

The total number of persons, as shown by the United States census of 1910, of school age,—that is, from six to twenty years inclusive,—in continental United States in 1910 was 27,750,599, of whom 17,300,202, or 62.3 per cent., attended school (1). The period of maximum school attendance is in the ages ten to fourteen years. For these years a comparison may be made with the census of 1900. In 1900, 79.8 per cent. of the children attended school compared with 88.2 in 1910, showing an increase of almost ten per cent. In the group of six to fourteen years inclusive,—the most common years of school attendance,—there was a total of 16,832,374 persons reported in 1910, and of this number, 13,706,980, or 81.4 per cent., attended school.

School life is to a certain extent an artificial one for the growing child, whose normal growth depends considerably on its muscular activity. The child entering in ordinary schools undergoes a physical as well as a psychical depression. Schoolroom discipline naturally tends to check this muscular activity, which in turn tends to develop muscular fatigue, resulting in, or causing bad postures, nervous tension, strain, and exhaustion.

In fact, the school life of a child has a very real and important influence in direct relation to its physical development. School deformities are usually due to, or if present, increased by prolonged sitting in faulty positions, combined with too little muscular activity. It is thought, however, by many observers that faulty postures alone are not enough to cause marked structural deformities; but given conditions in the child which imply lack of bone or muscle resistance, the deformity—more or less severe—may develop. Anything which reduces

*A lecture delivered, in part with lantern slides, to Assistant Professor Norton's class in pedagogy at Harvard University, March, 1912.

the general vigor and health of the child will consequently decrease its resistance to abnormal and long continued strain.

The common type of school deformity is, however, not a severe structural scoliosis, but generally

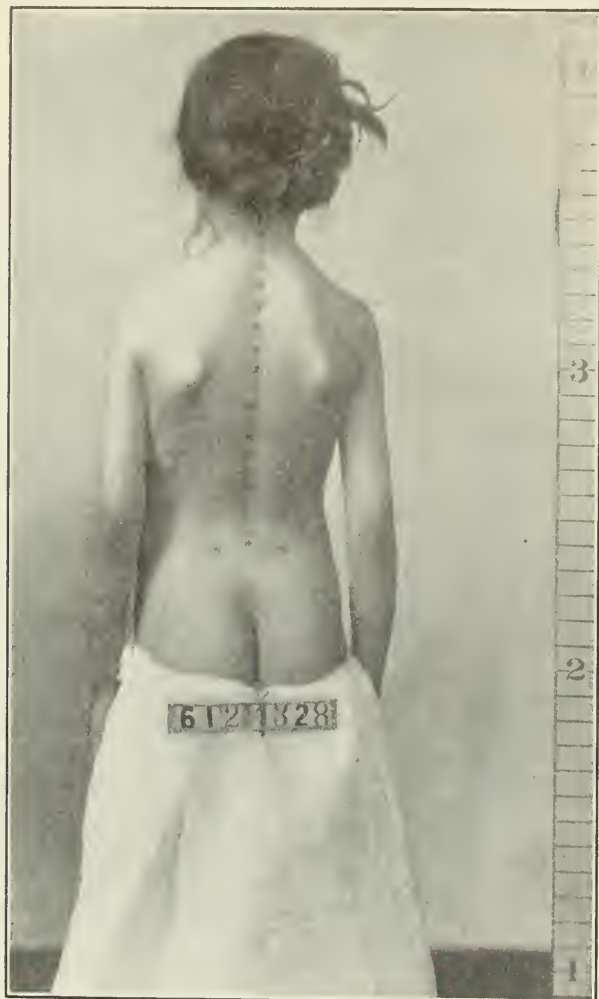


FIG. 1.—Showing typical case of left total scoliosis; physiological curve.

a so called functional or false scoliosis, generally convex to the left. Variations in the anteroposterior plane are also very common. See Figs. 1 and 2. These latter variations may be classified under the following headings, namely: Round Shoulders; Forward Shoulders and Round Back; Round Back and Round Hollow Back with Forward Shoulders.

Round shoulders is the condition commonly seen where the head is carried forward, together with an increase backward of the normal physiological dorsal curve, with drooping shoulders, flat chest, and protuberant abdomen.

Forward shoulders and round back is simply an exaggerated condition of the foregoing.

Round back is a condition somewhat similar to the foregoing conditions, but where the increased backward dorsal curve is the predominant factor.

Round hollow back and forward shoulders form a condition well shown in Fig. 2. It is similar to the other conditions, but is accompanied by a marked increase in the normal lumbar lordosis.

These conditions may be due to too much study and too much indoor life after school hours. Carrying many books home for study has also been suggested as a cause for lateral curvature tendencies, in that in New York the grammar school children habitually carry five pounds of books to and from school. This weight carried daily in one hand, or over one shoulder, exerts a distinct tendency to deformation. The schools are probably less to blame for the occurrence of lateral curvature than is generally believed; even with the most complete development of school hygiene, lateral curvature will not altogether disappear in school children, for the tendencies are probably implanted before the school life begins. It has been shown that twenty-five per cent. of the school children in Germany, for example, hold themselves crooked.

In the absence of direct pathological causes, it is believed that the chief factor in the production of faulty postures is fatigue of the back muscles, resulting in the assumption of a position which, taken originally to relieve strain, becomes habitual, and finally, owing to structural changes, permanent. Such fatigue usually results from prolonged standing and sitting rather than from active exercises. The fact that in all cases subjected to these same conditions of strain curvatures do not develop shows that individual predisposition also plays a part. Other conditions may cause bad postures, such as unequal hearing, which causes tilting of the head habitually to one side, as will also poor or unequal vision (2).

WRITING POSITIONS AND METHODS.

The bad postures taken in using the slanting handwriting at a school desk has been urged as a factor in the production of scoliosis in school children; and for that reason the vertical system was introduced several years ago. This system, in spite of some favorable statistics, has not proved wholly efficient. The fact that a child when using the vertical system has its hand directly in the line of vision of the penpoint when sitting properly, causes it to bend the head or body to one side, and so tends to produce a bend and twist in the spine. There has been an attempt made to overcome this difficulty by using a penholder in which the pen is set off to one side of the line of the holder, but this has not proved an adequate solution.

The statistics in favor of the vertical system are as follows, and are the result of separate investigations in the following cities:

	Slanting writing.	Vertical writing.
Nuremburg	24%	15%
Zurich	32%	12%
Munich	24%	15%
Fürth	65%	31%
Wenzburg	28%	8%

The figures represent the percentage of the occurrence of lateral curvature under the two methods employed.

In writing, the position should be a good one, i. e., with the back straight and the shoulders even, with the child directly facing the desk. The child should sit squarely in the seat, with the whole forearm resting on the desk, the elbow near the lower right hand corner. Figs 3 and 4 give a good idea of a good and of a fair position, with the relations of the arms, pen, and paper to the desk top.

PHYSICAL EDUCATION AND HYGIENE.

School children should not be required to remain sitting for long periods, and while sitting the back should be supported in such a way as to relieve the muscles from undue strain and stretching forces. It is therefore obvious that the first aim of any adequate treatment is to secure rest of the muscles. This may be done by frequent exercise periods of short duration, and by proper seating, as obtained by the proper relation of the desk and chair to the individual, combined with proper support to the back in a normal sitting position. An exercise period of three to five minutes at the end of each hour, or even at the end of every two hours, may be enough to counteract deleterious effects of the school desk and chair and of too long rest in a bad posture. Improper attitudes invariably result from fatigue, and that fatigue must always follow any attitude which is maintained without change for any length of time, is obvious.

School departments in all the various cities of this country are alive to the necessity of the establishment of departments of physical education and school hygiene, combined properly with the development of athletics in the schools. Many such departments are now established under the charge of a competent instructor for both girls and boys, who often does more than merely conduct routine setting up drills, but is also on the lookout for postural or structural deformities of the spine. This instructor should be versed sufficiently in corrective work to undertake the care herself, or to know enough to send the case to some one who can handle it.

The work done in Oakland, California, by the Department of Physical Culture under the charge of G. H. Pfund is very interesting and suggestive. I will abstract freely from Mr. Pfund's report as follows:

DEPARTMENT OF PHYSICAL CULTURE.

The aim of this department is threefold:

I. Improvement of the functional activity of the body, especially the functions of the lungs and heart.

Breathing Exercises.

II. Prevention and correction of tendencies to abnormal development, especially those resulting from "sedentary attitude during school life."

Orthopedic Exercises.

III. Development of the body into a harmonious whole, under perfect control of the will. It is not to produce great bulk of muscles (professional athletes), but to cause that already present to respond readily to volition.

Standard Chest Expansion.

The standard chest expansion of all grammar grades combined was 2.87 inches in February, 1908; and reached 4.48 inches in December, 1911, which is an increase of fifty-six per cent. in a four years' period.

Aims of Deep Breathing Exercises.

The system of deep breathing exercises prescribed by this department has the following physiological aims:

1. Strengthening of the lung muscles proper, the diaphragm, and the intercostal muscles.
2. Strengthening of the muscles that are helping in the breathing process. (Muscles leading down from the neck, shoulders, arms, chest, loins.)
3. Increasing the elasticity of the lungs and the chest.
4. Equal development of all parts of the lungs.
5. Enlarging of the chest cavity and permanent increase of the breathing capacity of the lungs.
6. Deepening the ordinary breathing.
7. Increasing of the circulation and purification of the blood.

Work toward Erect Postures.

Children, on account of hereditary tendencies, general weakness, rapid growth, malnutrition, poverty of blood, scrofula, or other protracted illness, are particularly inclined to spinal troubles.

The most common trouble among children is the "kyphotic back," or posterior curvature of the spine, with the corresponding depression of the chest wall.

So much has this condition been, and is still being, neglected in most of the schools of this country, that we have come to believe that a stoop back is physiologically normal! See about town and convince yourself of the truth of this fact.

The first conditions mentioned in connection with *bending over the desks while writing, drawing, reading, etc.*, will undoubtedly produce a posterior curvature of the spine (kyphosis); and if the body is allowed to twist in the seat at the same time, a lateral curvature of the spine (scoliosis) will surely result in time.

In order to ascertain and to prove such faulty postures in the desks while performing written work, the physical director has taken a number of photographs, the children being entirely unaware of it. These pictures will be used for lectures for the teachers and pupils when ready.

Examination of Postures.

The nature of the postures on the photographs thus obtained showed the necessity of some action. The physical



FIG. 2.—Showing anteroposterior position of same child as that shown in Fig. 1. Note round hollow back, with forward shoulders.

director thereupon made an examination on postures of all the children (14,000) in the school department. The records of each child individually, as well as of the class collectively, are kept by the teacher, who is instructed especially to watch and to help the stooping ones.

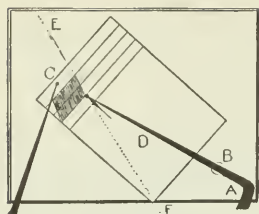


FIG. 3.

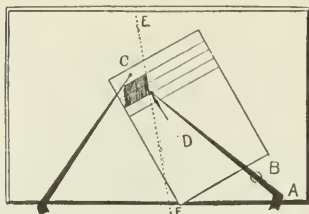


FIG. 4.

These diagrams are intended to show clearly the position of the writing paper on the desk, the relative positions of arms, paper, and desk, and the direction in which the pen moves to secure uniform slant. Fig. 3 is the half side position mostly used in public schools and best adapted to them, because of the character of the desks. Fig. 4 is the square front position.

In both diagrams, *A* represents the square turn at the right elbow and its position on the desk, *B* is the muscular rest of the forearm, *C* the position of the left hand in its relation to the paper and the right hand, *D* the penholder, and *E E* the imaginary line between the eyes along which the pen should travel in upward and downward strokes.

With the right forearm crossing the lower edge of the paper a little to the right of the centre, the pen should progress one fourth or one third of the distance across a sheet of paper eight inches wide, before the position of the paper is changed. Always use the left hand to move the paper. Paper of this width should be shifted two or three times, and when the end of the line has been reached, the paper should be returned to its original position. Lift the pen before moving the paper.

In order to increase the "sense of being" and of keeping straight, several outlines of back and chest of the physiologically best looking pupils were drawn on the blackboard, and afterward the outlines of the most stooped ones, as a contrast.

These comparative outlines seemed to have a very strong impression upon the children's minds.

The report here below shows the per cent. of children whose back (and chest) were within the physiological curve last term:

Fall Term—1911.

Grades	.....	R	1	2	3	4	5	6	7	8	Average
Physiologically normal in percentage.	56	65	71	73	75	72	69	66	68	68	

Eminent physicians working along these lines have declared that the physique of a child changes to the worse from the moment the child commences school work.

The foregoing figures show the statement not true up to the fourth grades in our schools, but a fact in the grammar grades.

In order to follow up the work commenced, a second examination on postures was made this term in half of the schools. Following is the result:

Spring Term—1912.

Grades	.....	R	1	2	3	4	5	6	7	8	Average
Physiologically normal in percentage.	74	83	86	82	81	71	74	72	78	78	

These records show an average improvement of ten per cent. in one term.

Comparing the figures of both examinations, we notice that in a general way the number of physiologically nor-

mal children increase from the first to the fourth grades, and decrease from the fifth to the eighth grades.

We may readily account for this decrease by comparing the amount of written work in the desks prescribed for the primary and grammar grades.

Again, these figures become interesting if we compare the grades where no written work is done on the desks, with the ones where such work begins.

Recommendations.

1. I believe we ought to insist upon *erect* and *correct* postures while doing written work.
2. I recommend that ten to fifteen minutes of physical culture be allowed on the daily programme of the grammar grades. As it is, this work is readily omitted in these



FIG. 7.—Showing arrangement of seat to desk; i, plus distance; ii, minus distance; iii, zero distance.

grades. The result of the two examinations on postures will clearly prove this fact.

3. That open air gymnasiums be erected on all new and old school grounds.

4. That swimming tanks be constructed for the use of the schools, so that swimming instruction may be given.

In conclusion, I will report that by a general inquiry in the classes, I find that thirty-nine per cent. reported repeating at home exercises taken at school; sixteen per cent. reported taking a cold sponge-off in the morning; seventy-seven per cent. reported sleeping with open windows (this also included porch sleepers).

He also presents figures covering a period of four years' breathing exercises in an average of

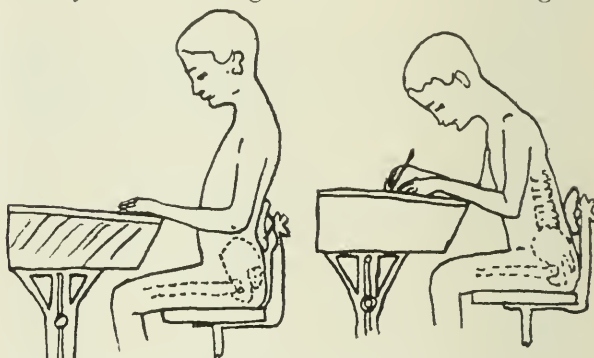


FIG. 8.—Boston School House Commission desk and chair, devised by Dr. F. J. Cotton. See Report, 1903-1904. (See Fig. 19.)

6,000 grammar school pupils, showing a steady increase in chest expansion from the fifth to the eighth grades, which increase averages 2.28 inches, or an increase of ninety per cent. breathing power.

FREQUENCY OF THE OCCURRENCE OF SCOLIOSIS.

The frequency of scoliosis in school children increases with the age of the child and the class, but that constancy of progression is not always found; and their susceptibility to compound or structural curves increases also with their age. There is a rapid increase between the ages of eight and thirteen years, especially between the ages of eight and eleven,—a period usually of rapid growth; which period also corresponds to the highest percentage of school attendance for persons of school age. (See *United States Census Report*, 1910.)

Kirsch, of Magdeburg (3), examined 1,000 school children for evidences of lateral curvature; 500 children were examined at the time of entrance to school and also at the



FIG. 5.—Showing unnecessary support above the hollow of the back; contributes to slouching.

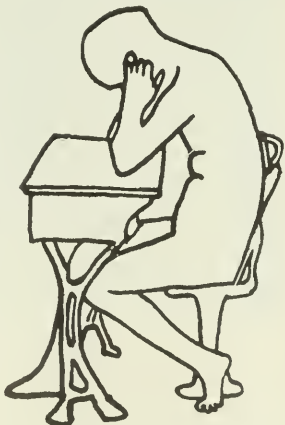


FIG. 6.—Showing a chair and desk too small for a large child, which condition allows nothing but a bad posture.

end of their school life. At the beginning, 21.9 per cent. of the girls had scoliosis; at the end, 41.1 per cent. of the girls had scoliosis. Of the boys, 19.0 per cent. at the beginning had scoliosis, and 21.4 per cent. showed evidences at the end. Seven and four tenths per cent. of the girls had fixed or structural scoliosis; and 7.2 per cent. of the boys showed a similar condition.

The influence of school life raises the proportion of scoliosis from twenty to thirty per cent. Whereas in the girls the proportion of rise in the cases of structural or fixed scoliosis was 5.5 per cent., there was no increase in the boys.

Gronberg, Germany (4), reported his observations on 8,053 school children. He found that 48.1 per cent. showed evidences of bad attitudes and deformities. This frequency is obviously very high.

Dukes (5) reports 445 cases of lateral curvature out of 1,000 boys examined, giving a percentage of 44.5, with 126 cases of acquired pigeon breast.

Scholder (6) examined 2,314 school children and found 571, or 24.67 per cent., scoliotic; frequency equally divided between the two sexes. The great majority of these 571 cases had a left curve. He believes this tendency to a left sided lateral curvature is alone a sufficient argument that school is a determining factor in the causation of scoliosis, for such a lateral curvature corresponds to the faulty attitude taken by the child when writing. He also shows by statistics that the children who have been the longest in school have the greatest percentage of postural deformity. He compares his figures with those of other observers in other places as follows:

	School children.	Scoliosis.	Percentage.
Guillanne, Neuchatel	731	218	29
Krug, Dresden	1418	357	25
Hagmann, Moscow	1664 (girls)	29	25
Kallbach, St. Petersburg	2333 (girls)	26	26
Scholder, Lausanne	2314	571	23.67
Average, about 27 per cent.			

Silfverskjöld, of Stockholm (7), has had occasion to examine 3,234 girls in Gothenburg schools, and found scoliosis present in 416—that is, 12.8 per cent. He states that the largest proportion of cases occurred in apparently robust girls of fifteen and sixteen years of age. A great number of children showed asymmetry of growth, such as short legs, etc.

Tait McKenzie, in New York (8), states that out of 122 school children examined, 32 cases, or 19 per cent., had scoliosis; that out of 446 athletic college students, 19 per cent. had lateral curvature; and in another series of 200 college students, it was well marked in over eight per cent. and slight in an additional sixteen per cent. In a girls' high school, out of 160 examinations, it was found present in thirty-one cases, or nineteen per cent. The average of all observers shows about twenty-seven per cent. of occurrence, with the period of greatest frequency between the ages of seven and fourteen years. From an analysis of 9,485 school children examined by different and competent observers in different parts of Europe, there were twenty-five to thirty per cent. affected with lateral curvature.

It may be said that the frequency of scoliosis occurring in girls of the school age varies from ten to twenty-three per cent., and in boys from 16.4 to twenty-six per cent.

Hagland's (9) studies showed an increase with the school age as follows:

Age	7	8	9	10	11	12	13	14
Percentage of scoliosis	11	13	18	16	18	24	22	22
Number of cases								1599
Cases of scoliosis								283

From this brief review of some of the statistics, you may note that lateral curvature is a real problem to be met in the school child. How this can be partially done by means of proper school furniture I will endeavor to show you, for there is no question of the real and practical need and value of the proper seating of school children.

SCHOOL FURNITURE.

The question of school furniture has been before the public for some seventy years, having origi-

inated with Barnard in 1842, and about 150 models of desks and chairs have been advocated. At present a great number of American school children are sitting in chairs which give no support or inadequate support to the back in any attitude they may assume, and at desks which are not adjusted either to the proper height or at a proper distance (plus or minus) in relation to the child's needs. To be sure, many cities are using adjustable furniture; and in one state, Indiana, twenty per cent. of all new installation is required by law to be adjustable. It is a fact, however, that in many schools, benches with and without backs, kitchen chairs, and single and double settee seats are found in common use, much to the detriment of the pupils' proper physical development.

Adjustable furniture is rarely used altogether in all schools, many departments being content (where any is used) to limit their equipment of this type to a percentage of twenty-five or even fifteen. Many schoolrooms have but one row of eight desks and chairs of the adjustable type.

It is also true that no matter how much adjustable furniture is installed, it is no better than the old chairs or benches unless it is adjusted. That is, each pupil should be fitted to the seat and desk in a proper relation.

The reasons for adjustable furniture, provided it is adjusted, may be seen from the following statements: Conditions have been noted where children differing seven years in age and twenty-two inches in height have been found sitting in similar seats and at similarly arranged desks. These conditions, I venture to say, could be duplicated in many schoolhouses in this country where no opportunity exists to adapt the individual pupil's size to the desk and chair in their proper relations: either the desk is too high and the chair too low, or vice versa. The desk may also be too far away from the seat,—a too great plus distance; or too near,—a too great minus distance; causing undue stretching of the back muscles in the first instance, and a cramped position in the second.

Thomas Wood (10) states that all seats and desks should be adjustable and adjusted. He gives figures on 25,000 boys and girls showing that the amount of variation in height at the same ages has been 11.35 inches.

PROPER RELATIONS OF SEAT AND DESK TO PUPIL.

School desks should leave room enough for the knees, and should be low enough so that the elbow and forearm may rest comfortably on it without bending the back. The slope of the desk theoretically should be about 30°; but as that is too steep an angle to allow books and papers to rest on it without sliding off, a compromise angle of from 12° to 15° has been selected. The seat should be no wider than the width of the hip, for wider seats predispose to slouchy attitudes. It should be about two thirds the length of the thigh. It may or may not slope very slightly backward, but this is of no great importance. Any great slope is distinctly bad. The height from the floor should be such as to allow the feet to rest equally and comfortably on the floor. A seat of too great breadth, as well as one of too great depth, compels bad postures. The seat should have a back which supports the lumbar spine when sitting, at work, as well as at rest.

For standard use, the front edge of the seat should be about one inch behind the front edge of the desk—a so called plus distance of one inch. The back of the chair should be either straight up and down or sloping very slightly backward, and should support the spine in the lumbar region. The lower edge of the support should come about one inch above the hip bones. Any support above the hollow of the back is superfluous, and often of distinct disadvantage in that it offers a support for the common slouching attitudes seen in children when sitting on the forward edge of the seat, the spine bowing backward between the lower end and the top of the shoulder blades. (See Figs. 5 and 6.)

The back should give plenty of clear room at its lower portion for the buttocks and clothes; otherwise, the child will be cramped and pushed forward in the chair.

The essential features in adjustable school furniture are as follows:

1. Adjustment for height, vertically, of chairs.
2. Adjustment for height, vertically, of desks.
3. A back rest of proper inclination, with adequate support for the lower back.
4. A proper depth of seat.
5. A proper slope of seat.
6. An adjustment of desk or chair for plus or minus distances. (See Fig. 7.)

Quoting from *Dr. F. J. Cotton's* (11) report to the Boston Board of School House Commissioners, he states the following salient points:

"We have long known how undesirable long continued flexion of the back is in regard to producing scoliosis as well as kyphosis. Certainly one of the most important things to avoid in seating children is the tendency to flexed and twisted positions. For a considerable part of their time at least, we want them near the balanced sitting position. . . .

"Now if we are to work against flexed positions, we must maintain the lumbar curve. This means support to the lower lumbar spine. The straight chair back cannot give this; and considering the varying anatomical curves, and, even more, the variation in the size of the buttocks and the bulk of the clothes, no fixed long curve can be devised to give such support in all or even most individuals. We must have direct support applied where we most need it. With the lumbar curve supported, the chair back need go but little higher to give full comfort in the proper sitting position; and below this lumbar region, no support can be of any use. The top of the back need come no higher than the top of the desk edge.

Doctor Cotton devised an excellent adjustable seat and back (see Fig. 8), which is extensively used; but I have been told that on account of the slight increased expense in its manufacture, chair manufacturers are disinclined to bid on it or school departments to call for its installation.

(To be concluded.)

PROSTITUTION IN JAPAN.

By DOUGLAS C. McMURTRIE,
New York.

The beginnings and early development of the system of prostitution in Japan are very naturally shrouded in legend, like other phases of the history of this people. In primitive times it is likely that it did not exist, this being true of practically all peoples prior to the advent of a fairly extensive civilization. Marriage customs may have been lax

and concubinage may have existed, but prostitution in its true sense, the promiscuous offering of female intimacy for valuable remuneration, was almost surely a development of later times.

The first mention of a prostitute in the literature of Japan which has come to my notice is in a collection of poems,¹ which was made while the court of the empire was still at Nara. One of the poems was mentioned as being the composition of a "woman who goes about for pleasure." One author holds that the sponsor of prostitution in the country was an eminent man, Komatsu Tenno, who sent out his eight daughters as courtesans, and that the later prostitutes of Japan were descendants of these women. Another author² says that in very ancient times, when nobles and merchants visited the seaports they were solicited by women who put out to their ships in small craft. Still another authority is responsible for the statement that the widows and daughters of the soldiers killed in a great battle at Dan-no-ura, were forced to offer themselves in the streets as prostitutes in order to gain their subsistence. These women were called *joro*. Another statement tallying closely with this is that during a revolution the emperor and his foster mother fled, taking with them as attendants a numerous band of temporary nuns. The two members of the royal family drowned themselves in order to avoid capture and the nuns, cut off from any other resource, adopted prostitution as a means of support.

Another story gives the origin of organized prostitution as due to a warlike commander or usurper who, in leading his troops from place to place, feared they would miss home comforts and ties and so be led to desert. He therefore established regular stations of prostitutes, to the nearest of which he led his soldiers after a battle.³

Detailed information is scant, but indications point to the fact that the various women in question were far from being members of a low class of society. In fact the very contrary might be inferred. In the *Kokonchomonshu*, mention is made of a courtesan, daughter of a nobleman, who danced and sang before the Emperor. Men of high rank, who would not associate with inferiors, considered it compatible with their dignity to visit the various resorts which were springing up. Children of prostitutes seemed to have a legal status, the son of one being referred to as of noble rank.

The morals of the upper classes of Japan, at a time of approximately the tenth century, are of great interest, and for the following description which I am enabled to give of them,⁴ I am indebted to Captain Frank Brinckley, that eminent student of Japanese life who died but a few months ago.

Many a citizen of Kyoto made the trip down the Yodo River merely for pleasure. Houses of entertainment abounded in the towns on the way, and before a ship dropped anchor she was surrounded by boats carrying courtesans, dancing girls, musicians, and other agents of amusement. It must not be supposed that the courtesan of those days descended to any depth of moral degradation when she espoused her abandoned calling. The esthetic enthusiasm and voluptuous delirium of the era created an atmosphere in which polite accomplishments could eclipse any environment, and ministers to pleasure had honor

¹Oye Tadafusa.

²Manyoshu Poems.

³Sanger, *History of Prostitution*, p. 438.

⁴See *Japan, its History, Arts, and Literature*, 1, 232.

irrespective of their methods. In this respect the morality of the era resembled that of Greece in the days when Praxiteles carved a statue of Phryne and Apelles painted Lais. There did not indeed exist a social vacancy which the *yujo* or "daughters of joy" could fill, such as was created at Athens by the seclusion and ignorance to which wives were condemned. The Japanese wife took her due place in society and owed as much to her literary attainments as to her beauty and tact. But the marital tie did not possess, even approximately, the value attached to it in Christian communities. A woman might occupy the leading place in a household and be the principal star in any social galaxy from that of the imperial court downward without having the status of a lawful spouse. Students of Japanese history when they observe the great part played by females in the politics and court life of the Heian epoch, cannot fail to observe that the ethical rule applied to women's conduct was almost as lax as that applied to men's. The beautiful Aki, with hair that exceeded her stature by ten feet, who bewitched the Emperor Ichijo; the fair *dansuse* Tamabuchi, whom the staid Emperor Uda loved; the female augurs who held the threads of the Fujiwara intrigues; the group of brilliant writers—Sei, Murasaki, Daini no Sammi, Izumi, and Udaisho—whose names are never to be forgotten so long as Japanese literature exists, not one of these celebrities can be said to have worn the white flower of a virtuous life. In the hands of the Fujiwara nobles women were an essential instrument, since it was by giving a daughter to be mistress of a sovereign if not his consort, that the political supremacy of the family was maintained in each generation. A woman might always be required to sacrifice her virtue in the interests of others, and naturally she did not shrink from sacrificing it voluntarily in her own interests.

If women could attain to distinction in spite of the taint of irregular sexual connections and often by their aid, virtue might well cease to be esteemed. It goes without saying that incontinence was not counted a disgraceful feature in the life of a good man. The Emperor Ichijo, who lived in the midst of most sensuous surroundings and was himself a slave to extramarital affection, nevertheless had sufficient nobility to pass a winter's night in an almost nude condition in order that he might be able to sympathize fully with the sufferings of the poor. There was indeed a much lower depth of immorality to which men had learned to descend in that epoch, unnatural love. To the everlasting disgrace of the Buddhist priesthood, that vice had the sanction of their practice, and no condemnations of it are found in the literature of the time. All these circumstances prepare the student to find that the frail sister of medieval Japan was in no sense a social outcast.

In the inland provinces there were prostitutes of probably inferior class, though several literary compositions of considerable merit which were credited to their authorship have survived. A later development, about the middle of the twelfth century, was the acquisition by innkeepers, for the convenience and pleasure of their guests, of a staff of harlots.

Some time later it is recorded that Yoshitaka, Lord of Shimizu, was appointed officer in charge of prostitutes. During the military disturbances of the Ashikaga dynasty no mention is found of systematic prostitution, and it is probable that it was reduced to a minimum. But when Japan was subdued by Hideyoshi, a special quarter in Kyoto was set apart for prostitutes and their direction was given into the hands of the Satomi family.

As the city of Yeddo became more prosperous, however, it attracted many of the prostitutes from Kyoto, and a special quarter was founded for them. They seemed to have scattered at a later period, a report classifying the houses in three districts and showing the surprising total of fifty brothels. The ground in one of these districts was taken over by the government during the course of improvements

of the palace. The occasion seemed to the keepers of the houses an auspicious time for the establishment of a regular quarter for prostitutes, and a petition to the authorities embodied such a request. The arguments advanced in favor of such a plan show that similar special quarters already existed in Osaka and Sumpu, as well as at Kyoto. Other advantages urged for the scheme were that it would facilitate the apprehension of criminals and would prevent the kidnapping and seduction of young girls from their homes. Immediate action on this petition was not taken, but it seems to have been granted in 1618. Special regulations were promulgated at this time, as follows:

1. Prostitution is forbidden outside the special quarter, as is also the transfer of prostitutes from one house to another.
2. No guest may remain in a brothel more than twenty-four hours.
3. Prostitutes are forbidden to wear clothes with gold embroidery on them; these are to be dyed.
4. Brothels are not to be built of imposing appearance. The inhabitants are to be subject to regular municipal duties.
5. Notice is to be given if persons of suspicious appearance are seen about the quarter.

The ground allotted for this prostitute quarter was a region covered with weeds and rushes, whence the name *Yoshiwara*, moor of rushes. This was changed in later generations to "moor of good luck." Shoji Jinyemin was given the position of *nanushi*, or director of the quarter, though he was known among the officials of the town as *kimigatete*, prince of prostitutes, or as *oyaji*, parent. He set about clearing the land, and in less than two years it was open for business.

Prostitution was thus confined and legalized, but other regions were still infested with *jigoku*, or unlicensed prostitutes. These latter took away much of the business from the *Yoshiwara*, and the directors of the quarter petitioned the authorities for the suppression of their competitors. Measures were promptly taken and it was decided that all *jigoku* should, upon discovery, be transported to the *Yoshiwara* instead of being visited with fines or imprisonment. But this did not provide a complete remedy. Bath houses began to spring up in the quarter, and these were attended by shampooers, who were really *jigoku*, or harlots. One is led to remark that this is echoed in the "massage" advertisements of the present time.

In 1656 an order was issued by the government to the brothel keepers that they would have to transfer their quarter to another section of the city. This spread great consternation, and a petition was immediately filed that public funds be appropriated to assist in the required removal. Strange to say, this request was granted, as was also an extension of the time in which the moving should take place. During this delay it happened that the city of Yeddo was burned to the ground and the houses in the quarter were destroyed. A larger space was then allotted for the use of the prostitutes, and provision was made for the *jigoku*. All of these latter which were found outside the *Yoshiwara* were sent to it and were raffled for by the various houses.

The greatest precautions were taken to prevent disturbances within the enclosure, entrance to which was obtained by but one door. None but priests or

doctors might ride within it, and the carrying of swords or spears was prohibited. Periodical examinations of the brothels were held, and it was required that all the resident women be registered.

In odd association, Christians and gamblers were prohibited from entering the *Yoshiwara*, and patrons were prohibited from staying more than twenty-four hours at a time. The practice of going out to a tea house at the end of this period and returning at once met with severe reprobation. Guests had to register at the houses, signing their names phonetically correctly, but, if they desired, ideographically incorrectly.

In early times there existed the *shirabyoshi*, who partook of the characters of both, the *geishas*, or dancing girls, and prostitutes. But the *joro* began to abandon their dancing and singing accomplishments and became prostitutes pure and simple. There came into existence, however, a class of dancing children who were used outside the brothels to lure in patrons. The only difference visible between these girls and the regular *joro* was that they tied their *obi*, or sashes, behind their backs. In 1769 this class was supplanted by singers called *geiko*, who were in turn replaced by the *geisha* girls.

The selling of women into the *Yoshiwara* was conducted through a registry office, called a *jogen*. These offices sent agents into the country to buy, beg, borrow, or steal women and girls, whom they brought back and locked up until the time of their actual transfer to the brothel masters. In order to prevent possible escape they nightly stripped the girls naked and secreted their clothes under their own *futons*, or mats. When girls were purchased an indenture was signed by the parents. The registry office charged a commission of ten per cent. The agents also lent money at usurious rates, and in the case of defaulted payments settled the account by taking another daughter.

The dress of the prostitutes had in early times been made very simple by law, but the regulations changed gradually, and in the early part of the nineteenth century it became quite sumptuous. That this was so is shown by the paintings of Utamaro, Eisan, Kunisada, and other Japanese artists.

The rooms hired by the average *joro* from the brothel keeper were two in number. One was the girl's living room, while the other, which she was at some pains to decorate attractively, was set apart for the reception of guests. Exceptionally popular *joro* sometimes had three rooms, but this was only the case in the best houses. The *joro* of the lower brothels lived all together in a common room, the private apartments being set aside for the entertainment of guests. It is even said that in the least expensive houses guests and *joro* all slept together in the same room.

In illness the ordinary *joro* was thrust into a small dark room, away from the guests. If dangerously ill or dying, her parents were called in and she was handed over to them free. The brothel masters had a great horror of dead bodies in their houses. If their efforts to get rid of the dying *joro*, however, were in vain and she expired within the house, her body was cast into a common pit.

At one time, the beginning of the eighteenth century *shinju*, or double suicides, of *joro* and guests

became so common that it was necessary to expose their bodies in the streets in order to deter others from the same act. The burial was similar to that of dogs, owing to the superstition that animals have no ghosts and thus no spirits would haunt the house. The hands and feet were tied together, the bodies wrapped in matting and cast into a common grave.

The *joro* were supposed to leave the brothel at the age of twenty-five years, though this was more frequently twenty-seven. Occasionally a guest would fall in love with a *joro*, in the event of which by paying her debts and certain costs he could buy her out.

The *joro* were generally known by poetical or symbolical names, which are worthy of interest because of their beauty. I here append several: Evening Mist, Filmy Cloud, White Jewel, Cherry Tree, Golden Mountain, Garden of Flowers, Young Butterfly, The White Cloud, River of Song, The Face of Evening. Among the names of the brothels might be mentioned the following: House of the Eight Banners, House of the Three Sea Shores, House of the Myriad Flowers, House of the Dragon Cape, House of the Ten Thousand Plums.

I may thus conclude this historical sketch of the development of the *Yoshiwara* of Yeddo. In other regions of Japan the tale would be very similar, and the foregoing may, I believe, be taken as representative.

Present conditions in Japan are a development of the system already described. An important feature, however, is the place held by the *geisha*, or dancing girls. At the *geisha ya* little girls are taken sometimes by arrangement with their parents, sometimes by adoption by the proprietors of the establishment, and are trained in dancing, singing, and *samisen* playing, and other methods of serving and entertaining guests. They are an indispensable adjunct at every Japanese affair and entertainment, and well repay the time and labor spent in their training, as a good *geisha* girl has plentiful engagements open to her.

In the education of the *geisha*, however, manners are of more importance than morals, and many a girl willingly leaves the dancing in the tea houses to become the concubine of some wealthy man, be he Japanese or foreigner. Upon the expiration of her contract she goes back to her dancing again without compunction. Not all *geisha* girls are immoral, but there is so much influence for the bad in their life and so little for the good, that where one treads the straight and narrow path, many fall. Yet the *geisha* are fascinating and bright, and many Japanese of good standing have taken them as wives. With the general looseness of marital morals, the extent of the system of concubinage and the legal recognition of the children of concubines, the charm of the *geisha* presents a social problem of prime importance.

Then there is the *joro*, or professed prostitute, whose history we have discussed. Every city in Japan has its tenderloin district where the licensed houses are situated. The governmental supervision is rigid and every effort is made to minimize the evils.

The keepers of the *joroya*, or houses of prostitution, do everything possible to make the quarter attractive, and to the uninitiated it might seem the

most pleasant part of a city. The *joro*, however, can be distinguished from other women by a distinctive dress and by the fact of her wearing her *obi*, or sash, tied in front instead of behind.

The prostitute is not looked down upon, however, as is her sister in America, largely owing to the fact that most of the *joro* do not take up their occupation as a free choice, but are drawn into it as virtual slaves, being sold for the purpose in childhood. Some may have sacrificed themselves to support those whom they love, but experience in other countries would lead us to expect that this class is small. Many tales are current in Japan regarding the *joro* of this type, who is rewarded by finding, even in the brothel, a lover who will marry her and restore her to a life of respectability.

The houses of prostitution give employment to many thousands of women, but it may be stated on good authority that but few seek them from choice.

There have recently been made successful efforts to limit the power of the brothel keepers over the *joro*. Though the actual sale of girls was prohibited by imperial ordinance in 1872, the price was afterward called a loan to the parents of the girl, and further loans for clothing and board were charged against her so that it was impossible for her to get out of debt and out of the clutches of her master, except through death or purchase by a lover. The institution of prostitution was generally regarded as a necessity, and public opinion did little toward improving the lot of the *joro*. Over twenty years ago a movement for the betterment of conditions was started by some Japanese Christians, but failed for want of support. The young men of the empire decried it vehemently. Under a new code, however, it was provided that a *joro* might leave her situation by notifying the police, but this was nullified by a regulation requiring the endorsement of the *joroya* keeper to make such an application effective. In 1900, however, with the assistance of various citizens, one case was brought to court. The decision was made that the contract made was in conflict with public welfare and morals, and ordered the brothel keeper to affix his signature without regard to the indebtedness of the girl. The local police refused to act, however, but on appeal to the authorities at Tokyo, the order was enforced and the girl was freed. A religious body in Tokyo then took up the matter on a larger scale and distributed an issue of their paper containing an offer to assist any girls who wished to abandon their mode of living, and distributed copies of the paper throughout the prostitute quarter. Those who distributed the papers were soon driven out, but much damage had already been done. The co-operation of the police and the press was secured and considerable public opinion was aroused.

As a result of the crusade the patronage of the houses fell off and a new government regulation greatly improved the situation. Four months after the issuance of this order, 1,100 out of the 6,335 girls licensed as prostitutes in Tokyo had left the business.

In character, the situation as regards prostitution in Japan is unique. In practically no locality are the two features of segregation and detailed inspection and oversight combined; as there exists no law entirely forbidding an institution which has

demonstrated the impossibility of its suppression, there is no opportunity for corruption in its protection. From a business standpoint, the management is carried on in the light of day, and the low and disgusting features engendered by an underground activity are absent.

In Yokohama the conditions are fairly typical. The main street of the *Yoshiwara* is over a mile long. On each side it is lined with houses of prostitution in front of each is a cagelike show window in which are seated some of the girls. In a great many there is a frame nearby in which are exhibited pictures of the various prostitutes and under each is the *fixed* price of her fee. It is therefore possible for the prospective patron to know in advance the charge he will incur. In comparison with the custom in this country, the fees are low, being very seldom over ten yen (five dollars), even in the most sumptuous houses, and they are generally much less.

All traces of vice are rigorously excluded from the other parts of the city. Houses of prostitution are practically impossible of existence, nor is there any street solicitation. The social evil does not, therefore, obtrude itself on the people. When any one wishes to avail himself of the facilities of the *Yoshiwara*, it is necessary for him to make a premeditated trip to a distinct and comparatively remote section of the city.

In any consideration of the moral situation in Japan, it is incumbent upon one to point out that the proportion of illegitimate births is very high. For instance, the vital statistics⁵ of the city of Yokohama show the following figures:

Year.	Total births.	Illegitimate births.
1897	2,573	592
1898	2,557	907
1899	2,893	664
1900	3,109	725
1901	5,247	1,110

In both sets of birth figures, stillbirths are included. In the illegitimate confinements stillbirths form a larger proportion than in the legitimate ones.

It cannot be contended, however, that this condition is due entirely to the system of prostitution. Very probably the marriage customs and laws are responsible to an even greater extent. The proportion of illegitimacy, is, nevertheless, a feature of the Japanese social system which cannot be neglected.

In conclusion, I may point out that the principles upon which prostitution has been conducted in Japan have justified themselves empirically as far as local conditions are concerned. What development has occurred has been along strictly consistent lines and the salient features have been always retained. Whether the system would work well in another country is open to question, but an institution so carefully developed must certainly merit consideration and attention on the part of those interested in the morals and health of the community.

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PHYSICAL THERAPEUTICS FROM THE MODERN POINT OF VIEW.*

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There is probably no department of medical science that has been more neglected by most physicians than the use of electricity and other physical measures in therapeutics. At the same time, greater progress has been made by those who have been devoting their attention and time to research and development in the employment of these measures than is generally supposed. The differential consideration of electric currents and their indications as applied to therapeutics, has become more and more a matter of discrimination with the advance of electrical science.

Until recent years, electrotherapeutics has been practically limited to the uses of the constant and induced currents (then known as the galvanic and faradic), and a generally indiscriminate use of the static currents. Under the empiric régime of Erb and his followers in the employment of electricity it fell into disrepute, except with a few physicians who have employed it scientifically with a knowledge that enabled them rationally to meet indications. These men kept alive the science which, with the advance made with later discoveries and invention of devices and apparatus, together with the development of better methods of using the static and other currents of high voltage or potential, has developed electrotherapeutics into a science which already, in the hands of those who understand the indications and methods of employing it, rivals surgery or any other recognized medical procedure. It is a matter of regret that the medical profession has not everywhere kept pace with the progress that has been made; and a source of satisfaction that there is now evidence of a renewed interest in the subject.

There are so many physicians now doing good scientific work with these measures, that the profession and public is becoming rapidly enlightened to two facts: 1. Physical measures—electricity, the Röntgen ray, radium, radiant light and heat, convective heat and mechanical measures, are of great value in relieving human suffering; and, 2, as much depends upon the knowledge of the methods by the man who uses them as upon the agents in question.

Of electric currents, there are three specific effects, which meet distinctly different indications. They are: 1. *Mechanical*; 2, *thermic*; and, 3, *electrolytic effects*—the same well known actions of electricity which make it valuable commercially. For the therapeutic application of electricity, it is generally desirable that currents be employed which practically produce but one of these effects in order to meet definite indications. In the *static*, the *d'Arsonval high frequency*, and the *constant current*, we have three distinctly different classes of currents, which are respectively peculiarly well adapted to meet the different indications.

Electrical currents which produce mechanical effects, induce contraction of muscular tissue, alternating with release when the rate of interruption is

less than 600 a minute, above which rate contractions become tonic. For these effects the static methods excel all others, and are also practically devoid of thermic and electrolytic effects. When applied to infiltrated tissue, such currents, by successive contractions induced for a requisite length of time, expel or force out through the lymphatic channels the products of inflammation retained in swollen and indurated tissue—the seat of a condition of local stasis.

A part or organ which may have suffered a local trauma or sprain, or has become the site of a local congestion as present in an enlarged prostate, uterus in subinvolution, congested liver, or enlarged spleen, is thus softened, and the swelling is reduced with a restored metabolism. Then circulation and restitution are resumed. In addition to these mechanical effects of the static currents, they also materially improve general metabolism and *relax local muscular spasm* by a selective action upon the muscular cells, and coincidentally anticipate or prevent its recurrence by having removed the inflammatory or other reflex causes of the spasm.

The *thermoelectric high frequency currents* occupy quite a different field and from quite another point of view. All currents produce some heat when passed through resisting tissues, but no current is so free from objections when employed in therapeutics to produce heat as the direct *d'Arsonval high frequency current*, because its effects are purely thermic without mechanical or electrolytic action.

When the rate of interruption of a pulsatory current or the rate of oscillation of an alternating current exceeds 10,000 a second, all muscular contraction or other mechanical effect ceases, except that due to the rapid passage of the electrons through the tissues; hence, the absence of perceptible mechanical action from high frequency currents.

That there is no electrolytic action from high frequency currents is readily demonstrated by passing them through a solution of iodide of potassium, when electrical decomposition is not produced, even when the solution boils from the passage of the current. The effect therefore from the passage of the *d'Arsonval current* through the tissues is largely, if not entirely thermic, with a harmless but beneficial effect upon the cells, due to the passage of the electrons through the tissues. The value and significance of the thermic effect of the high frequency currents from the therapeutic point of view is of comparatively recent recognition.

When a tissue is irritated or heated it becomes promptly hyperemic, which in either case arises from reflex stimulation of the vasomotor centres. When heat is applied to living tissue the part heated becomes promptly hyperemic, the degree or intensity of which will vary as the temperature. The direct *d'Arsonval current*, as induced by suitable apparatus, is capable of producing a degree of heat up to and beyond the limit of toleration, under perfect regulation. The extent and degree of the hyperemia produced will depend upon the size of the electrodes, which are placed on opposite sides of the body or part treated, and the volume of the current passing. The current will pass through and heat all of the tissues which are in the interval immediately between the electrodes and nowhere else.

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The vasomotor mechanism, in an effort to maintain the normal body temperature in these tissues, reflexly causes the hyperemia to persist until the fixed tissue cells are cooled to normal, the difference in temperature being gradually adjusted by the heat being given off to the blood while passing rapidly through the dilated vessels within the heated tissues.

Electrolysis, with or without ionization, is the third property of electric currents which serves a distinctly different purpose from the others, and is preeminently the field of the *constant current*.

Electrolysis is a destructive process by which the tissues, when made the electrolyte or substance acted upon, are destroyed or disorganized. When metals, as silver, zinc, and copper, are used as electrodes at the positive pole, or the halogens and acid radicals at the negative pole, they are driven into the tissues as ions, and, at the same time, electrolysis is also taking place in the tissues. Salt solutions and organic bodies may also be acted upon and separated into their ultimate elements and ionized into the tissues, from one or the other of the poles when electrodes are saturated with them. These procedures are distinctly destructive or alterative according to the method and dose employed. The opposite poles are therefore distinctly different in their actions and indications, and a knowledge of these effects and an intimate familiarity with dose and technic is imperative; for no current in the hands of a novice is so dangerous as the constant current.

Radiant light and heat, as derived from the sun or incandescent or arc lamps, are important therapeutic agents, the value of which depends upon the effects of transformation of radiant energy into heat units and other vibratory effects when applied to the tissues. The penetration of these radiations varies with the wave length, increasing with the increase in the wave length from the upper limit of the ultraviolet to the lower border of the infrared. The effects are antiseptic or actinic of the higher frequencies, and stimulating or inhibitory from the lower frequencies including the infrared. The luminous effects undoubtedly increase the oxidizing powers of the blood with an increase in the hemoglobin, whereas the heat effects arising from the absorption or transformation of radiant energy into heat vibration, locally increase metabolism, nutrition, and phagocytosis by the induction of hyperemia. Radiant energy then, from luminous sources, is antiseptic from two points of view; the actinic action, which is relatively limited in the tissues because the highest frequencies penetrate but superficially, and by the induction of hyperemia, with the consequent increased number of phagocytes in the infected tissues, which latter is the most important effect of radiant energy.

The Röntgen ray, an ether vibration, of infinitely greater intensity and frequency than the luminous vibrations, penetrates all tissues to greater or less extent and produces either stimulating effects from very short exposures, or a marked inhibitory effect when the exposures are long.

The penetration of the x ray varies with the volume and intensity of the radiations, which depends upon the character of the x ray tube and the source of the current or apparatus by which the current is

produced, the higher vacuum tubes, other things being equal, producing the rays of greatest penetration.

The inhibitory effects of the Röntgen ray, under judicious management, are capable of lessening the functional activity of all living cells, including the bacteria which inhabit the living tissues, and by such action produce tissue inertia and sterility in every form of animal or vegetable life. This has been well established in its effects upon the human species, much to the discomfiture of some of the younger operators. It has also been thoroughly demonstrated upon vegetables and germ life, both in the laboratory and by clinical experience. Employed from this point of view, the Röntgen ray becomes a therapeutic agent of great value in the treatment of many overactive and infected processes, and is entirely safe in the hands of a physician who understands its properties, the proper regulation of the dose, and the control of extreme conditions arising from its employment in therapeutics.

Convective heat is the heat conveyed by the heated blood stream away from a surface to which dry or moist heat is applied. The term, convective heat, is used in contradistinction to radiant heat as produced in the tissues by a transformation of energy. Convective heat is not capable of producing hyperemia beneath the skin. This was demonstrated by Dr. W. Gilman Thompson, with his experiments on a cat, and is contrary to the generally accepted notion. When employing high temperatures with the dry hot air apparatus, however, with the parts protected by Turkish toweling for the purpose of absorbing the perspiration, thereby preventing boiling of the perspiration which would blister the skin, it is capable of producing an intense hyperemia in the deeper structures as well. By means of the depressing effects of the heat upon the germs and hyperemia thus induced, this method is invaluable and uniformly successful in from two to four days in the treatment of pyogenic infections when present in an arm or leg.

Mechanical vibration and concussion are very important therapeutic measures when employed intelligently. They are methods which render the processes of massage much easier and more practical and, at the same time, are capable of producing deep penetrating vibration with stimulation or inhibition of the spinal centres, and of the various organs in the abdominal and thoracic cavities. Applied to the spinal and sympathetic nerves in the spaces between the vertebral process, it is possible to contract or relax tissues corresponding to the distribution of the various nerves, which arise at the site of the application. Thus vasomotor conditions may be affected, either raising or lowering arterial tension at the will of the operator; or a relaxed abnormal heart may be toned to a stronger and more vigorous condition. As shown by Abrams, dilated arterial trunks may be contracted and the stomach, kidneys, or other organs, relaxed or contracted at the will of the operator. These statements of Abrams have been verified by many of us, and, though to some they may seem improbable, they are now beyond denial.

When the methods enumerated are properly employed in conformity with the indications, they are

often capable of producing effects which frequently restore to normal conditions which would not be otherwise so favorably affected.

If we divide disease into the two types of inflammation, infectious and noninfectious, conditions of muscular spasm, conditions of fibromata, hyperplasia, or scar tissue; hemorrhagic conditions, defective metabolism, and malignant disease, it will be possible in the time allotted to consider each briefly.

Wherever inflammation is present *without the presence of germs or malignancy* in the inflammatory zone, the static modalities—the static wave current, the static sparks, brush discharge, and all other static modalities which cause tissue contraction, are preeminently the most effective means now known to medical science for promptly restoring swollen and infiltrated tissues to normal. In all early conditions, except where fracture or rupture of bone ligament or muscle is present, the results are remarkable. Likewise in chronic inflammation of similar character the results are generally successful, but it requires a longer time to eliminate the products of the inflammatory process.

Those unfamiliar with the electromechanical treatment of noninfected inflammation, including the cases arising from toxemia, are certain to be favorably impressed, if they will investigate the methods and results obtained. It will also explain to them the occasion for the enthusiasm of the men who use their static machines intelligently.

Under the noninfected cases may be named a very large number of conditions, including accessible cases of neuritis—sciatic, brachial, facial, or herpes zoster. These cases of neuritis yield in the first days to a very few administrations, with immediate relief from pain. All cases of noninfected synovitis, before chronic structural changes take place, are relieved and restored to normal if the parts are intact. Other cases of synovitis, which are responsive to mechanical electric treatment, include cases of acute sprains, which are usually made normal in four or five days; and the toxemias affecting the joints including rheumatoid arthritis, Still's disease, so called rheumatoid arthritis, typhoid spine, and gonorrheal arthritis.

Synovitis, arising from intestinal toxemia, demands, in conjunction with the electric treatment, removal of the source of toxemia.

Gonorrheal arthritis is promptly relieved in the male, in most cases, by the application of the static wave current preceded by the vacuum tube current, applied to the vesicles and prostate gland in the rectum, where the latent infection is usually found to be. This has already been verified by numerous observers and in many cases, and can be readily demonstrated.

Treatment of inflammation of the prostate gland with an electrode in contact with the gland in the rectum, employing the static wave current, has also already demonstrated its value. I have, to date, succeeded in relieving more than two hundred cases by this method. Subinvolution and dysmenorrhea also yield in ninety per cent. of cases to treatment with the static wave current applied with a metal electrode in the rectum, the current passing readily through the tissues when the electrode is held in position against the uterus.

Add to these the successful treatment of varicose ulcers, phlebitis, chronic eczema, and numerous other superficial skin conditions treated with the static brush discharge, and it is not necessary to enlarge upon the indications for the electromechanical application of the static modalities.

For efficiency in relieving these conditions, the static machine, which so many have unwittingly relegated to a remote corner of the consulting room or otherwise disposed of it, holds this field preeminent without peer or rival. The mechanical effects are feebly produced by currents from other apparatus, but do not compare in efficiency with the effects of the static current; and furthermore, no current is so free from electrolytic action, nor so moderate in the thermic effects produced.

The treatment of inflammation due to local infection by the combined effects of the x ray, radiant light and heat, and the high frequency currents, is one of the most satisfactory of modern therapeutic methods.

I. *The x ray* by inhibiting germ development in living tissue to the extent of arresting propagation or development, is invaluable when employed with the proper degree of energy, without otherwise injuring the host.

II. *Radiant light and heat* as radiated from incandescent or arc lamps of high candle power depress germ development, and coincidentally produce heat far into the tissues, accelerating metabolism, and increasing nutrition and phagocytosis.

III. *The high frequency current* produces hyperemia which, by increasing phagocytosis as previously stated, is directed to clearing out the germs from the infected zone.

Used in varying combinations to conform to varying conditions there are no infections over which the phagocytes have dominion, that may not yield to a skillful technic with these measures.

Tuberculous infections, superficial and deep seated, may be effectively relieved in the first stage by these three potent agents, used in proper combination. In tuberculous adenitis, and the two types of lupus, they seem to be specifics. In pulmonary tuberculosis, together with the other usual hygienic measures they undoubtedly fill an important place. In tuberculous arthritis, in the early stage, they have given remarkable results. In tuberculous peritonitis, they comprise the rational treatment, and there are many records of success from their employment in these cases.

No less successful are these measures in the treatment of pyogenic infections. In the simpler cases, which include indurated acne, boils, whitlows, carbuncles, frontal sinus disease, and acute otitis media, and in the chronic purulent type of otitis media, when necrosis of ossicles is not present, the same measures are uniformly successful in abating or curing the conditions. In early and chronic appendicitis, they are eminently successful in many cases. In chronic appendicitis and gonorrheal vesiculitis and epididymitis they are remarkably effective. These statements, which may seem too optimistic to those who are unfamiliar with the methods employed, will bear critical investigation.

Another valuable use of the d'Arsonval current, over which I will pass hastily, is its effect upon *hypertension*. When I state that it is now possible

to control the blood pressure in all except the most advanced cases of arteriosclerosis, and often prevent or defer apoplexy, and thus ward off nephritis, I am making a statement which I do not stand alone to prove. It is one of the most gratifying developments in modern therapeutics.

This result may also be accomplished in other cases by means of mechanical vibration applied over the vasomotor centres. In cases of hypertension these measures are properly employed in conjunction with a carefully regulated diet régime.

Wherever muscular contraction or tension is present associated with inflammation before muscular degeneration has taken place, the static current, mechanical vibration, or massage effects relaxation, affording temporary relief and in many cases aiding much in effecting a cure.

Fibromata, hyperplasia including scar tissue are not so favorably removed by any other agent as the Röntgen ray. It is so recognized in this country and abroad by all advanced scientific workers with the x ray.

In inflammatory processes with developing hyperplasia and adhesions it is always possible to arrest the process and promote the absorption of such low vitalized tissue.

In pelvic hemorrhages arising from fibroid tumors, and menorrhagia arising from relaxed and atonic conditions of the uterus, the x ray is remarkably effective in arresting the flow. So also in all cases of profuse menstruation. These results have been confirmed in many cases by numerous observers here and abroad.

For improving local and general metabolism—increasing elimination and absorption—there is nothing that equals the physical measures—light and body baths, dry hot air baths, the static wave current, and the autocondensation methods.

In all conditions of hypersecretion of the ductless or other glands the x ray effectively inhibits the secretion and, when employed systematically, permanently arrests the process. This is amply exemplified by the uniform success in the treatment of Graves's disease and hyperidrosis. Physical measures, including radium, also play a very important rôle in the treatment of *malignant disease*. The x ray has thousands of cases of epithelioma, numerous sarcomas, and a less number of carcinomas to its credit, and is an invaluable aid not to be ignored in connection with the treatment of most cases by surgery or other methods. Radium has clinically cured numerous cases of giant celled sarcoma and epithelioma.

Probably no method is better adapted to the treatment of epithelioma of the tongue than Massey's ionic method associated with the x ray. The hot fulguration spark of Rivière, the method of Doyen, and the desiccation method of Clark, each have succeeded in suited cases of epithelioma and papilloma.

The high potential Oudin spark, employed by the fulguration method of De Keating Hart following the surgical operation, which is inevitable in all extreme growths, is a method showing remarkable possibilities as evidenced in the investigations now being made at the New York Skin and Cancer Hospital.

In closing, I may add that the whole field of

physical therapeutics, of which electrotherapeutics fills a very large place, in the judgment of those who are familiar with the methods and indications for employing the various modalities, is one of the most, if not the most fruitful and satisfactory in medical science. The physician who employs them scientifically, finds in their use a source of successful endeavor not so certainly rewarded by other methods.

329 WEST FIFTY-SEVENTH STREET.

HIGH FREQUENCY CURRENTS IN MEDICINE.*

BY DR. FREDERIC DE KRAFT,
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When using high frequency currents for medical purposes, either a static machine of large output, a coil with mechanical break, or a rotary converter may be the source of current supply. If we attach a Leyden jar to each of the two prime conductors of a static machine and have the sliding poles slightly apart, the machine running at fair speed, we note the rapid passage of sparks at the sliding rods. A pair of electrodes attached to the outer coatings and held the same length apart will also show a shower of sparks. Such an arrangement was described by Dr. William J. Morton, in April, 1881, under the name of "static induced current," which is the basic arrangement of all high frequency currents.

Sir Oliver Lodge described the same arrangement in 1888, and named the spark at the sliding rods (the exploders) the A spark, and called the spark from the external coating the B spark. The A spark is an oscillatory discharge with the plus in one direction in excess, and if applied to the tissues, would be destructive by reason of its electrolysis action. The B spark is harmless. The A spark can be easily stopped—short circuited—by bringing a wet blotting paper close to it. Not so the B spark. The wet blotting paper, instead of stopping it, helps it to pass with greater ease. It will even pass through water. Immerse a large metal plate in a basin of water in such a way that at least an inch of water intervenes between the bottom of the vessel and the plate. Then connect this metal plate with the outer coating of one Leyden jar and attach a metal electrode to the other Leyden jar. Now open the sliding poles so that an A spark of an inch or more will pass and place the electrode against the bottom of the vessel. A very noisy spark of extreme brightness will pass through the water, agitating it violently and shaking the vessel as though to break it. This experiment is the more successful and the display the more vivid when Leyden jars of large capacity are used. There is there an entire absence of bubbles and other electrolytic effect. We have a purely molecular disturbance, a mechanical agitation of water and the basin.

The B spark will pass readily through carbon or stout copper wire. D'Arsonval conceived the idea

*Read at a stated meeting of the Medical Society of the County of New York, October 28, 1912.

of using a copper spiral for the alternative path, the B spark in 1890. Sir Oliver Lodge showed that if he ground one end of what is now known as the "d'Arsonval spiral," and prolonged the other end by a wire (either straight or coiled) ending in a knob, and with the adjustment suited to the length of the wire—tuning—he had a brush discharge—his recoil kick. Oudin adapted this to medical purposes in 1894.

The frequency of the oscillations depends entirely upon the capacity of the Leyden jars and the self induction of the discharging circuit. When the jars are small the discharges are quicker than from large ones. The larger the Leyden jars, the more room has the electricity and the slower will be the rate of discharge, but the faster and longer the oscillations.

In the older types of apparatus, but a single spark gap was employed. With the multiple spark gap which we now employ, we have succeeded in obtaining oscillations of infinitely greater frequencies; and, as a result, greater warming effect than ever before. This multiple spark gap is of the simplest possible type. There are nine gaps. The sparks are discharged, unmuffled, in the open air. Owing to the extreme shortness of the sparks and the multiplicity of the fine sparks, the noise is not unpleasant.

The result from this greater number of short, fine sparks, in increasing the rate of oscillations to be obtained from a d'Arsonval spiral, is truly amazing. When the bipolar method (diathermy or thermopenetration) is employed, there is at all times an entire absence of faradic effect. The heat effect is marvelous. We can obtain a gentle warmth; or a heat that will desiccate the tissues in the shortest conceivable time.

As a result of the extreme rapidity of the oscillations obtainable in the B circuit by reason of the enormous number of sparks in the A circuit, we increase the resistance in the solenoid to the passage of the current, on account of its property of self induction. Hence, more current passes in the derived circuit of which the patient's body is a part. Again, as a result of this greater self induction produced by these extremely rapid and multitudinous oscillations, there occurs another surprise in the "kick off" or Oudin spiral. The brush effect—the Oudin effluve—is more marked, many times longer, and of greater density.

The methods of using the d'Arsonval current are, *First*: The direct application. Here the patient is connected to the solenoid by two electrodes. Both of these may be of metal or one may be of glass. Their size should vary with the amount of current density we wish to employ, and the area we wish to subject to the action of the current. The patient's body is thus placed in shunt or derivation. The solenoid offering great resistance to the passage of the current, by reason of its property of self induction, it passes by preference in the derived circuit of which the patient's body is a part.

Second: We have the method where we use a large solenoid and place our patient in the interior in such a way that no part of his body touches the solenoid. The patient is thus placed in an intense oscillating magnetic field.

Third: We use the method of autocondensation. For this we need a couch or armchair, on which is a metal sheet long enough to cover the full length of couch or chair. This metal sheet should be covered by insulating material of sufficient thickness to prevent the passage of sparks. The insulating material may be of glass, fibre, or felt. On the couch or armchair so prepared, we place our patient and connect him to the other end of the solenoid, either by a pair of metal handles, one to each hand, or a large metal plate to the abdomen or chest. Our patient is thus one armature of a Leyden jar; the metal plate, on couch or chair, is the other armature; and the insulating material—the dielectric—the same as the glass of a Leyden jar.

A patient placed on the autocondensation couch, properly prepared, will experience a delightful sense of quiet restfulness. A gentle warmth, beginning at the wrist gradually extends up the arm to the axilla and over the entire body. This is attended with a slight flushing of the capillaries of the skin of hands and wrists, extending over the entire body, becoming noticeable in the face and neck in a very few minutes. This is accompanied by an inclination to drowsiness, so that patients frequently fall asleep while being treated.

The insensible perspiration of the skin is increased slightly and in certain constitutional disorders, such as gout and rheumatism, profuse sweating of the entire body will follow. Patients suffering gouty or rheumatic pains frequently experience complete relief from pain during treatment. This relief from pain lasts for hours, sometimes days, and cases have been observed by the writer where the pains disappeared after one treatment and never returned.

An individual, with normal pulse rate and blood pressure, will show no change in either; only a slight heating of the blood due to the flow of the current. This is true only of currents of moderate ampèreage. In other words, autocondensation helps to equalize the circulation where it is unbalanced. This is effected probably in the following manner: The great rapidity of the succeeding groups of oscillations first effect an intense heating of the surface of the body and of the blood. This in turn stimulates the great system of vasomotor nerves, resulting in peripheral dilatation of the bloodvessels, together with the stimulation of the sweat glands. It would seem that the sympathetic nervous system was stimulated most profoundly. A person who is slightly fatigued, either mentally or bodily, will be speedily refreshed and show a slight increase in cardiac force, and a slight fall in pulse rate. Persons weakened by reason of long continued illness will frequently respond by a rise in blood pressure, increased cardiac force, and a stronger, steadier pulse. When the blood pressure is high for the age of the person, there will be a reduction in the blood pressure and an improvement in the pulse rate. In cases of disease of the glandular organs of the body, a rise in blood pressure frequently occurs. This high blood pressure is compensatory. If too great efforts at reduction be made, disaster may result.

Currents of large ampèreage will heat the wrist

quickly. In a few minutes this heat at the wrist becomes an ache, which speedily becomes unbearable. These currents may produce decided (even alarming) fall in pulse rate and blood pressure; accompanied by faintness, cold drenching sweat, and general nervousness, and following by sleeplessness during the night, and muscular soreness the next day, with fatigue and varying degrees of feverishness.

If we apply the d'Arsonval current by means of a pair of metallic electrodes, to opposite ends of a potato for three to five minutes, using about one ampère of current, we find (on cutting into the potato) that the interior is cooked and mealy, while some of the exterior is untouched. On closer inspection, we find decided evidence of the line of force in the very centre of the potato. The greatest amount of cooking is in a straight line between the electrodes. The mealiness is more pronounced in the very centre than at the periphery. Similar experiments on meat, liver, eggs in the shell, and egg albumen have shown that the high frequency current, applied by the bipolar method, passes in a perfectly straight line. This passage is attended with heat produced by a peculiar molecular disturbance, a mechanical agitation. As a result, we produce friction of one molecule upon another. Added to this is the friction of the electrons rushing in from opposite sides upon each other. We have thus a purely mechanical production of heat, with method similar to that which was employed by the Indian when he lighted his fire. He rubbed one stick upon another, till flames burst forth.

Without molecular disturbance of some kind, without electrons hurled through space upon the electrons contained in the earth's atmosphere, there can be no light, no warmth, and no life upon this planet. This heat can be utilized for raising the temperature of fluids. If we immerse a pair of electrodes, attached to opposite sides of a d'Arsonval spiral, into a basin of water, it is easily possible to bring it to the boiling point without any evidence of electrolytic decomposition, no evidence of gas or bubbles. A small quantity of galvanic current suffices to produce gas and bubbles.

A solution of potassium iodide and starch, added to the water previously warmed by the high frequency current, will turn blue if a very weak galvanic current is passed. The high frequency current has no effect on such a solution. The constant current is incapable of heating water, excepting when large volumes of current are used. Then it is attended with rapid electrolysis. A constant current applied to a patient speedily becomes painful. Even with large electrodes, it is not often possible to pass more than thirty milliampères. A current of great frequency can be passed through the tissues up to hundreds of milliampères. The patient will tell you that he feels nothing but warmth, and it is only with currents of great density and strength that the heat becomes unbearable. This is attended with no muscular contraction, no electrolysis.

Raw meat can be easily cooked by high frequency currents. If a pair of electrodes, of suitable size, are applied to a piece of raw meat on opposite sides and a current of great frequency is passed

for a few seconds, we will notice (on cutting directly through the meat) that the action of the current has been in a perfectly straight line between the electrodes. This is a very important effect. It enables us to localize its action to any part of the body.

There are two kinds of effects to be noted when these currents are applied by the bipolar method. First, destruction and death of the tissues; second, increased function and vitality. To effect the first, we heat the tissues to the point of coagulation. Doyen states that cancer cells are destroyed at a temperature of 55° C. and lose their virulence at 50° to 55° C., while healthy cells are killed at 60° C. Burning of the second degree is produced at 70° C., and of the third degree at 75° C., if the heat is continued for some minutes. To gain increased function and vitality, we heat the tissues gently. By the use of large electrodes and long applications, it is possible to elevate the temperature of the body considerably—to 40° or 41° C. The laryngeal mirror will show reddening of the vocal cords and there will be hoarseness of the voice after thermal penetration has been practised for twenty minutes.

Patients find the increased warmth very agreeable. This warmth is introduced from without in immediately utilizable form, without the expenditure of any of the patient's stored energy. As the result of this warmth, we have increased activity of all gland secretions. The cutaneous glands secrete sweat and sebum freely. The liver secretes a larger amount of bile. We may even unwillingly precipitate an attack of gallstone colic in persons not previously suspected of having gallstones. If the stones are small, the greatly increased flow of bile may suffice to expel them.

The activity of the functions of the stomach, pancreas, genital organs, bladder, kidneys, may all be stimulated. In applications to the thorax, we observe deepening of the respiratory excursions. In asthma, for instance, the noisy respiration will cease, the expectoration become freer and less sticky, the sleep will become easier, the appetite will return, and the activity of the bowels become normal. The attacks become fewer and finally disappear.

In heart disease, where digitalis had previously failed to exert its physiological action, the heart responded and the dropsy was seen to disappear with profuse diuresis.

In gonorrheal arthritis, we heat the joint by the bipolar method to the limit of safety. Gonococci die at 41° C. While these are destroyed at this temperature, we observe not only marked relief from swelling and pain, but (as the result of the secondary hyperemia produced) we facilitate phagocytosis and enhance the strength of the normal defensive powers of the system. If we combine this method with an application of the current by means of a metal prostatic electrode in the rectum and a metal plate on the bladder, we will speedily cure our patient.

In gout, the bipolar method relaxes arterial spasm in the joint, produces an arterial hyperemia and enable the phagocytes to attack the urate of

sodium needles which von Norden tells us are eaten with avidity by the phagocytes.

In acute alcoholism, autocondensation does much good by its calming influence on the nervous system, by reason of its power to relieve gastric disturbances. It accomplishes this through its vasodilating action on the peripheral bloodvessels, thus balancing the circulation, relieving cerebral and visceral congestion, through its action in increasing oxidation and elimination by way of the skin, kidneys, and bowels.

In the early stages of general arteriosclerosis, this vasodilating effect is a valuable aid in preventing the rapid progress of the trouble. The general increase in metabolism; the flushing of the superficial capillaries; the increased activity of the skin and other excretory organs; the augmentation of fermentative changes in the intestines; the greater depth of the respiratory excursions; all help in some measure in expelling some of the poisons formed in man's body and thus retard the progress of the arterial changes.

A most important result of the application of the direct d'Arsonval current is the production of an arterial hyperemia of long duration and relief of venous stasis. In other words, there occurs an intensification of the circulation in the parts acted upon. This can be utilized in many diseased conditions, as in the improving the nutrition and effecting the healing of old ulcers. Diabetic ulcers are often markedly improved and sometimes disappear.

In intestinal autotoxemia, this method is of great utility. However, to cite all the many conditions in which these currents would be of service would be impossible. High frequency currents are simply one of the many resources of the healing art. Used sensibly in conjunction with other remedies,—medicinal, dietetic, physical, psychic,—they will be a great help to the physician.

We can only briefly allude to the action of sparks and effluves by quoting from Dr. F. M. Law's report to the American Electrotherapeutic Association: "Bacteria, exposed to sparks or effluve, were killed; bacteria, exposed to the discharge from a vacuum electrode, were not affected. Bacteria, protected by animal tissue of the thickness usually found in diseased conditions, were not affected by the discharges. Culture material, exposed to sparks, effluve, or vacuum tube discharges, was sterilized."

The healing of abscesses may be hastened by applying the effluve, partly by sterilizing the surface, by introducing ozone into the tissue (thus preventing the further growth of the bacteria), and by producing hyperemia and, as a result of this, increasing phagocytosis.

When using the effluve, there will be noticed at first intense anemia and cutis anserina, combined with a sensation of smarting and burning. This is followed by a marked hyperemia, which will last from a few minutes to several hours and is attended with diminution of sensibility. Prolonged application may lead to the formation of blisters. A more or less general application of the effluve may raise the blood pressure several cm.

The action of sparks is an intensification of the spray discharge. Long sparks of low ampère

have a stimulative or revulsant action. Prolonged application of the same, or short, hot sparks produce tissue destruction.

Fulguration, as the term has been too often employed, has given rise to much misconception. The fulguration of De Keating Hart is a very long spark of very high voltage and low ampère. The short, hot sparks, which have been used in destroying papilloma of the bladder, burn like a cautery and form an eschar similar to a burn from a hot iron. The short sparks of lower ampère (such as is used by Dr. William Clark, of Philadelphia, for removing small accessible neoplasms) fall short of producing an actual incineration of the tissues. They simply deprive the part of its moisture. Hence, the "desiccation." They cannot set paper on fire, which the hot sparks do.

The effluvation of Rivière embodies the employment of long fat sparks, whose action is attended with a sort of conflagration of the tissues.

In conclusion, we may say that a careless technic, unsuitable apparatus, improper conception of the actions of high frequency currents, and of the indications to be met, will surely result in failure to obtain the physiological effects described, and failure to relieve the patient of his suffering.

148 WEST SEVENTIETH STREET.

THE MOUTH FROM A DIAGNOSTIC STANDPOINT.*

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It is a curious trait of human nature that the closer at hand and the more available anything may be, the less is it resorted to, preference being always shown for the less easily accessible and the more remote. This occurs very frequently in diagnosis, and nowhere does this apply more truly than in the use which physicians make of mouth symptoms.

The oral cavity contains the largest expanse of mucous membrane, and every part of this large area can be examined with less difficulty than in any other cavity of the body. Its mucous membrane is very richly supplied with blood, except around the articulation of the tooth sockets. Hence we are enabled, not alone to judge of the general circulation, but also,—and this is the more important—through this sluggish gingival circulation we are enabled to detect constitutional changes at a remote part of the circulation, where such constitutional changes manifest themselves at a much earlier period than in other portions of the circulation. The mucous membrane of the mouth, therefore, offers many diagnostic criteria which are readily detected, and are easily interpreted if one only takes the trouble to look for them. But they must be looked for as part of the routine of the physical examination. Patients rarely refer to them, since mouth symptoms do not attract their attention unless pain or discomfort is associated with them. The physician usually overlooks them, since the routine examina-

*Read before the Summit Medical Society, October 25, 1912.

tion of the mouth as a rule is simply an inspection of the tip of the tongue.

The proper examination of the mouth should be made with a spatula or tongue depressor and with a good light. For the latter purpose the small pocket electric lamps are most admirably suited. The proper inspection of the mouth should include the tongue, the fauces, the tonsils, the inner surface of the cheeks, the lips, the gums, and the teeth.

The examination of the mouth should also include smelling the breath. The foul odor tells its own indication to all; but more significant in a diagnostic way is the sweet, champagnelike odor which is exhaled by all patients with acidosis. The presence of this acetone odor indicates acidosis, and an examination of the urine for acetone should at once be made whenever this characteristic odor is present, even when it is not very pronounced. Should the urine test be positive, the administration of sodium bicarbonate or sodium citrate in large doses, and a forced carbohydrate diet should at once be ordered.

Too many practitioners still believe that acidosis is only a symptom of advanced diabetes. This is a grave error, since it is much more frequently present in cases of vomiting. In every patient with attacks of vomiting, especially if accompanied by abdominal pains, acidosis should always be suspected; it will be found in a surprisingly large number of cases. Some of these patients are alarmingly ill, and erroneous diagnoses of appendicitis, biliary colic, etc., are made, and needless laparotomies have been performed. Cyclic vomiting in children is only acidosis in a vast majority of cases. I am sure that all of you have seen cases of this kind where laparotomies have been performed, and nothing pathological has been found either in the appendix or other parts of the abdominal cavity.

In acute infectious diseases the mouth manifestations often afford early diagnostic information; measles, scarlet fever, diphtheria, etc., require only mention; but variola, varicella, and r6theln may also have their local or even early manifestations in the mouth. In typhoid fever too one may obtain early diagnostic information in the mouth from the presence of the so called Bouveret ulcers, which appear as early as the seventh or tenth day of the disease. These ulcers are usually symmetrically placed on either side of the fauces just above and at the outer side of the tonsils. Rarely they are found on the uvula or at the junction of the hard and soft palate. They are kidney shaped, the concavity being toward the median line. They vary in size, but are usually about one half to three quarters of an inch in length and one third of an inch in breadth. They are usually covered with a grayish slough. They represent an infiltration of the lymphoid tissue in the fauces, which forms ulcers which are the homologues of the ulcers in the lymphoid tissue of the Peyer's patches in the intestine. Their duration is variable, being usually about a week. Their appearance is absolutely characteristic, and once seen they cannot fail to be recognized. Their occurrence is not so very infrequent (five to ten per cent. of all cases, Blum¹). Novotny² has found

them in a case of miliary tuberculosis and reports a case of typhoid fever complicated with paratyphoid fever in which they were present. Johanns and Devic³ found them in relapses; they state that their reappearance during convalescence enabled them to predict relapses which subsequently occurred.

Herpes of the lips is a valuable diagnostic symptom, which is usually associated with a diplococcus, either of pneumonia or of cerebrospinal meningitis. Its presence in any severe illness should lead us to look for either of these two conditions. It rarely occurs in other acute infections; only once have I seen it in typhoid fever.

Concerning chronic infectious diseases, like tuberculosis, syphilis, leprosy, etc., little need be said, since the local symptoms in the mouth are always of such a nature that they cannot be overlooked either by patient or physician.

Skin diseases are often associated with lesions in the mouth, and hence require mention. According to von Mikulicz and K6mmel, we should divide skin diseases with mouth lesions into two classes: First, those in which the mouth lesions are only extensions of the process from the skin on to the mucous membrane; second, those in which isolated efflorescences appear in the mouth, sometimes before they develop in the skin, and even sometimes without any cutaneous involvement at all.

In the first group diagnostic difficulties rarely occur; eczema and lupus erythematosus may be cited as examples. In the second group, we may mention lichen ruber planus, pemphigus, erythema multiforme, erythema bullosum, and herpes iris.

Drug rashes may sometimes appear in the mouth and may cause great difficulty in diagnosis. These mouth lesions occur most frequently with antipyrine, quinine, phenacetin, and aspirin. As lesions may also occur about the genitals, they may be confounded with syphilitic eruptions. The lesions are vesicular or are erosions with sharply defined margins with an overhanging border. They are very painful. Even small doses of these various drugs may produce these lesions, which usually occur in patients who have idiosyncrasies toward these drugs. This may be a useful point in the differential diagnosis (von Mikulicz and K6mmel).

Angioneurotic edema is another condition which should be remembered, especially as such cases are sometimes fatal from sudden edema of the glottis. Finally, scleroderma with its characteristic mouth manifestations should also be mentioned among the skin diseases with mouth symptoms.

The occurrence of pigmentation in the mouth is usually associated with Addison's disease, and I have seen a number of cases in which erroneous diagnoses were made simply from the presence of pigment in the mouth. Such errors arise because the fact is overlooked that pigmented areas may occur on the lips, inner surface of the cheeks, hard palate, and even on the tongue in individuals who are perfectly normal. The lesions are simply congenital peculiarities. Such pigmented plaques are also not infrequently found in diabetics and patients suffering from gastrointestinal disorders. They have also been found in pernicious anemia. Hence one should be on one's guard in suspecting

¹M6nchener medizinische Wochenschrift, November 20, 1906, p. 2292.

²Wiener klinische Wochenschrift, 1909, No. 22.

³Quoted by Blum, *loco citato*.

all patients with pigmented areas in the mouth as presenting possible cases of Addison's disease.

To warrant the diagnosis of Addison's disease the other characteristic symptoms should be present; i. e., profound asthenia, gastric symptoms, and severe pains in the back. In most cases a diagnosis of Addison's disease can be made very easily. An early diagnosis can also be made if the mouth is carefully examined, since these pigmented areas are always present, and not infrequently the mouth pigmentation precedes the appearance of the pigmentation of the face and the body.

The other conditions in which pigmented areas appear in the mouth are those due to metallic poisons such as mercury, lead, silver, and bismuth. Mercury can never be overlooked on account of the attendant stomatitis and salivation. Silver can usually be recognized on account of the accompanying argyric pigmentation. These cases, however, are now extremely rare since the use of silver salts in the treatment of chronic nervous diseases has been abandoned.

The lead line on the gums, however, is frequently overlooked. In all cases of obstinate abdominal colic with constipation, or cases of tremor, one should look for a lead line on the gums. One need not wait for a wrist drop to become aware of the possibility of lead poisoning.

Bismuth produces a characteristic pigmentation of the mouth which one should look out for in any case where large doses of bismuth have been used either for x ray purposes or in the cure of fistulæ by Beck's method. Symptoms develop about three weeks after its administration. They may be ushered in by a livid discoloration of the skin, which is soon followed by the appearance of small bluish ulcers of the gums, especially about the wisdom teeth. These gingival areas of pigmentation soon become longer and extend to the under surface of the tongue and the adjacent mucous membrane, which become intensely stained with a dark blue color which shines through the overlying normal mucous membrane. These areas may assume a very large size; their contours are very irregular. In advanced cases patches of diphtheritic membrane may be found on these pigmented plaques, and gangrene has also been reported in some patients. The constitutional symptoms have now become very severe, and include headache, vomiting, diarrhea, and other symptoms of colitis. Fever is always present in the later stages of the disease, and albuminuria is also common. Not infrequently these patients die from the progressive weakness and constantly increasing gastrointestinal symptoms.⁴

In the diagnosis of anemia the pallor of the mucous membrane of the mouth has always been noted. In pernicious anemia attention has already been drawn to the fact that pigmented areas may sometimes occur in the mouth; but one symptom, bleeding from the gums, and a scorbutic condition of the mouth, does not receive as much attention from physicians as this symptom deserves. If the patient is very young the diagnosis of Barlow's disease is made. If the patient is older, scurvy is the usual diagnosis. The latter disease, scurvy, however, is

now extremely rare, but the diagnosis is nevertheless made. One very important, and by no means infrequent disease is thus overlooked in considering the differential diagnosis and prognosis of this symptom. I refer to acute leuchemia.

In acute leuchemia the condition of the gums and buccal mucous membrane very closely resembles that of scurvy, but in addition one finds marked changes in the tonsils and the lymphoid tissue of the mouth. The tonsils, the posterior pharyngeal wall and even the base of the tongue are covered with foul necrotic ulcers which bleed readily, and which cause the patient much pain and discomfort in swallowing. The adjacent glands of the neck are enlarged and tender. Petechiæ and ecchymoses are found in the mouth and in different parts of the body; the pains are very intense; there are high oscillating temperatures, and the patients look very ill and are very anemic.

As the prognosis of these cases is rapidly fatal one should be on one's guard not to consider them as cases of scurvy. The picture is so characteristic that the diagnosis could be readily made from the condition of the mouth alone. When such a mouth condition is seen, the blood should at once be examined for the differential cell count. To many physicians leuchemia necessarily means a large increase in the white blood cells; in acute leuchemia, however, the number of leucocytes may be absolutely normal, or even less than normal. The only way to establish the diagnosis is by the differential count; there is an enormous preponderance of the large mononuclear lymphocytes, the proportion of which is usually over ninety per cent. and may even reach as high as ninety-nine or even one hundred per cent.

In pseudoleuchemia, lymphosarcomatosis, and chloroma, we may find marked hypertrophy of the lymphoid tissue of the mouth, but there is never any marked stomatitis or ulceration. There is no special change in the blood picture, and the differential diagnosis can readily be made from the symptoms in other parts of the body.

Finally, pyorrhœa alveolaris must be mentioned. As the dentists are by no means agreed on many phases of this problem, which has been so extensively discussed by them, I will not enter into any special consideration of it.⁵ We have, however, been singularly deaf to the pleas of the dentists to pay more attention to the subject, and we should heed their statements much more than has been the habit of most physicians. A skilled dentist can tell us much about the general condition of the patient from an examination of the gums, and a good differential diagnosis can be made by them of the incipient stages of diseases like nephritis, diabetes, tuberculosis, gout, etc. Each constitutional disturbance has certain peculiarities in the pyorrheal picture which enable the skilled stomatologist to differentiate them as to their etiology. Therefore, the routine examination of the gums should be included in one's inspection of the mouth, and the presence of a pyorrhea should warn us to look for the cause of it. Should we be unable to discover it, the case should be referred to a dentist who is skilled in stomatology, both for treatment and differential diagnosis.

⁴Since this paper was read an excellent article on Bismuth Poisoning has been published by Warfield (*American Journal of the Medical Sciences*, November 1912) with full bibliography.

⁵See editorial article in our issue for January 11, 1913, page 88.

In conclusion, it would not be amiss to say a few words about the value of mouth inspection in the treatment of patients. Of what avail is it to bombard the stomach with drugs and to diet patients, when the real cause of the symptoms lies in a foul mouth, missing teeth, filthy bridges and plates? Why prescribe sedative cough mixtures when a long uvula is the cause of an obstinate cough? Why fill a child with tonics when adenoids and enlarged tonsils are the cause of anemia? The tonsils are the cause of so much constitutional mischief that they should always be examined as a routine process. Especially important is this examination in all cases of articular rheumatism, chronic or even acute nephritis, and all cases of sepsis.

The care of the mouth would be attended to more carefully in all acute diseases if physicians now and then looked into the fauces of their acutely ill patients. It is surprising how often we can find foul conditions, the correction of which by very simple measures adds immeasurably to the comfort of the patients, and enables us to feed them more readily; while a dirty mouth destroys the appetite, and, moreover, infects every morsel of food which enters it. Recent researches have proved that in all acute illnesses the digestion and absorption of food are but little below that of health, and, moreover, that all infections can be fought better by patients if the waste of the body tissues is prevented. The patient should be properly fed, and a full supply of calories should be allowed to him. Keeping the mouth clean is the first and a very important stage in securing this end.

72 EAST SEVENTY-NINTH STREET.

OCULAR HEADACHE.*

BY AARON BRAY, M. D.,
Philadelphia.

Headache is the most common ill that human flesh is heir to. Society at large is subject to its preying at some period of life. It is no respecter of person. Rich and poor alike, men and women, young and old, the learned and the ignorant, all are occasional sufferers; some more, some less. No occupation or walk of life is immune, although some vocations may be considered as predisposing factors. The man who guides the destiny of the nation, the man who controls the money market, the genius and the inventor, the professional as well as the business man, the artist and the musician, the capitalist as well as the laborer is found to suffer from it.

Headache is not a disease, but a symptom of some abnormal condition. There are different kinds of headaches; some are localized, while others are diffuse. Headaches may be perceived as a sharp pain, excruciating in character it may be, on the other hand only a dull aching pain. It may be of a throbbing character or of a pressure nature. As to locality, it may be frontal, temporal, occipital, or radiating from these points to other parts. The locality and type of the pain does not always indicate with sufficient accuracy the cause of the head-

ache. Occasionally the headache is confined to one side of the head when we speak of it as hemicrania. Headache may be the only symptom, the only complaint of the patient; he may be otherwise in perfect good health. On the other hand, it may be one of a series of symptoms pointing to some diseased condition. The importance of this condition can be surmised when one can say with a degree of certainty that there is not a home in which this condition does not constitute a continuous source of misery to one or several members of the family.

Headache may be steady, continuous, a daily visitation to the patient, bringing misery unto him, or it may be periodical, although both may have one causal element. This variation in the degree and type, where one causal element is responsible for the phenomenon, can be explained only on the ground of differences in the resisting power of the individual, his mode of living, as well as his occupation. Women are common sufferers from headache.

Headaches may be due to various etiological factors. They may accompany the various acute infections, as well as various acute diseases of the eye. We shall, however, in this paper consider only the chronic form of headaches. The responsible cause for these headaches is in about eighty per cent. of the cases some error of refraction, or eye strain. In fact, it may be stated as an axiom that headache of whatever type occurring in an otherwise healthy individual, and not associated with any of the acute infectious diseases, may with rare exception be considered an ocular headache. By the term ocular headache is meant one that is caused by some error of refraction or muscular imbalance and therefore amenable to prompt cure. As stated above, headache may be the only symptom resulting from eye strain or it may be associated with other symptoms. These other symptoms may be the direct result of the error of refraction, or they may be the sequelæ of the primary symptoms, namely, the headache. Headache is only a symptom, but it may be ultimately responsible for many other symptoms of nervous irritability. In fact, the continuous sufferers from headaches manifest various nervous symptoms. Continuous headaches, even of the intermittent type, make a deleterious impression upon the entire body. Those who are unfortunate enough to suffer from headache for any length of time will best be able to testify to the baneful effect it has upon the general condition. One may even indulge in the supposition that nearly all of the symptoms observed in eye strain are merely secondary to the primary headache. Headache is the direct result in about eighty per cent. of cases of some ocular anomaly, refractive or muscular, and if neglected and permitted to grow into a habit it so saps the vitality of the patient that it soon gives rise to other symptoms.

Continuous headache brings misery into the home, deprives the patients of all pleasures, and ultimately makes nervous wrecks of them. It must be remembered after all that the pain is referred to the brain, which is the most important organ controlling all our emotions, and is the centre of our nerve force, that any continuous and prolonged pain in that part of our body will disturb our mental

*Read before the Southeast Branch of the Philadelphia County Medical Society, January, 1912.

equilibrium and produce a chain of symptoms which may simulate some serious nervous disease. Thus the patient with habitual headaches becomes irritable, restless, may occasionally suffer from insomnia, disturbances of memory, lack of concentration, dizziness and vertigo, gastrointestinal disturbances; in fact, headache may give rise to a chain of symptoms simulating some very serious condition of the body. Patients with a weak bodily condition may, as a result of prolonged suffering from headaches, become confirmed neurasthenics, while as a matter of fact the underlying disturbing causal element was simply an error of refraction that was either not recognized or if recognized not well corrected.

It may be laid down as an axiom that eye strain is the most prolific source of headache. Any error of refraction may give rise to eye strain and cause headaches, but it is found mostly in the astigmatic type, simple, compound, or mixed. It is interesting to note that in the majority of cases the eyes are free from pain and vision as tested by Snellen's card is normal. The reflex symptoms of eye strain seem to be in inverse ratio to the ocular symptoms. Normal vision does not mean a normal dioptric apparatus, for normal vision may be obtained with high degrees of error of refraction, such as hyperopia. But this vision is obtained by means of an extraordinary expenditure of nerve force exerted upon the ciliary muscles. The ciliary muscles, in response to this extra nerve stimulus, have to do an extra amount of work, and this overexertion causes reflexly the headache. We must remember that the eye is the most overworked organ in the body, beginning its work as soon as we awake in the morning and continuing until late in the night when we fall asleep. There is no rest even at the noon hour: so that the external and internal ocular muscles are continuously at work for about sixteen hours every day. When to this arduous labor is added the muscular and nervous effort necessary to overcome any anomaly of refraction and muscular imbalance, we can readily appreciate why such overwork should be followed by headaches.

TREATMENT.

It is our experience that patients suffering from frequent and prolonged headache soon learn how to treat themselves, although to their own detriment. They acquire a wonderful versatility in the various preparations on the market. All headache preparations in powder or tablet form have for their basic constituent some of the coal tar products, which if taken in sufficient quantity give temporary relief. The effect of the drug is soon transferred, however, to the heart and the nervous system, where it leaves an everlasting impression and only tends to make the patient more miserable. The chief danger in all the so called headache medicines is their temporary sedative effect, which lulls the patient into acquiring the drug habit, that will ultimately make a nervous wreck of him. The public press now and then reports a case of death which resulted directly from the prolonged use of such headache cure; this is, however, not very frequent. The majority of the headache powder patients suffer in their mental and psychophysical make up, reducing their intrinsic vitality, and weakening their cardiac mus-

culature, which can only show itself when cardiac and nerve force is most necessary—to overcome some acute disease. Even the moral fibre of these drug habitués is dulled, blunting their power of reason as well as their creative faculty, impairing their intellect, so that they are useless in the performance of tasks that require a high degree of intelligence.

There is sufficient reason to think that the laity has learned this mode of treating headaches from the medical profession, and it is certainly a fact that most headache cures sold in the market behind the counter are merely copies of some prescription by some known or unknown physician. It is true that theoretically we classify headache into different categories, ascribing to each some definite causal element and advise to find the cause before any treatment is attempted, but in reality, when confronted with a patient suffering from headache, what is the usual mode of treatment adopted by the average physician? Are we in reality not doing the same thing that some of the patients do themselves? Do not we have recourse in ninety per cent. of cases to the dangerous coal tar products? Phenacetine, antipyrine, acetanilide, and others are the usual ingredients, probably in some combination with some other drug that is handed out to the patient. The only difference between the self doctored and the professional prescription is that while under professional care the danger of overuse is somewhat lessened. Not very often does the doctor think of an error of refraction, of eye strain that requires correction, which is the offending cause, and at best he directs his patient to go to the hospital, or the patient of his own accord consults an optician. Optical adjustment, however, requires very careful attention, which the routine work of the hospital cannot supply, while the optician is absolutely deficient in his ability to cope with the situation. Not only is it essential to correct any existing error of refraction, but it is also of utmost importance that the equilibrium of the muscular apparatus be re-established wherever any disturbance exists. It is my personal conviction, based upon the study of several thousand cases, that fully eighty per cent. of chronic sufferers from headache can attribute their trouble to some faulty optical condition that can be corrected by the man who is efficient in that work.

It is well here to mention that some of these cases need some medical aid even after the optical error has been corrected. It is true that the cause of the headache has been removed by the properly prescribed and adjusted lenses, but the sequelæ of a protracted headache are still present and must engage our attention. Hygienic and dietetic measures, as well as a tonic treatment, will usually in a short time readjust all the possible changes that resulted from the depressing effect of a prolonged and protracted headache. Often the muscular disturbance must be treated by prism exercises. I have seen many patients whose refractive error has carefully been adjusted by some prominent oculist, yet this has failed to give relief simply because some disturbance in the external muscles has

been neglected. Children very often during school life suffer from headaches, and their suffering is continued merely because parents often object to their wearing glasses. Physicians should insist in these cases upon optical aid, and the parents may be assured that this optical aid will be necessary only while the child attends school. To permit a child suffering from headache to attend school without optical aid is nothing short of criminal, for soon these children become anemic and nervous, which prevents them from concentrating their minds upon the subjects they have to master, and usually they constitute a large number of the so called failures, not because of an inherent mental deficiency, but because of the ocular trouble which partly disables them.

A few words about the optician. A great deal of harm is done to this class of sufferers by the optician, who still has a hold upon the uneducated public, and constitutes a great number in any community. Most of these men are not only ignorant of the basic principles of physiological optics, but have not even received a common school education, and a considerable number of them are positively void of any sense of honor in their dealing with patients suffering from some ocular condition. To their ignorance must be added a dishonest desire to defraud the public. Knowing that there are no laws in this country sufficient to protect the public against all kinds of medical fakes, nor any law to prevent any one from calling himself doctor, they assume that title and ply their trade under the self assumed title in private offices with the sole intention of defrauding an innocent public. The public cannot differentiate them from the educated oculist. The public is under the impression that the title doctor can be used only by a man who had to go through a regular college course and had to qualify before a State board of examiners and legally register in the respective locality in which he resides. Therefore, they place confidence in these men, consult them for ocular troubles and eye strain. As a matter of fact, however, these men are mere charlatans using the title doctor to defraud the public. I charge them with dishonesty. If they had any sense of decency and attended to their business honestly, why would they use the title doctor, for which they neither toiled nor labored? Their pretension to the title convicts them of fraud and dishonesty. Some day I suppose the laws of the land will prevent these parasites from using the title doctor for selfish fraudulent purposes; until then we are helpless and the community at large must suffer the consequences.

I am aware that there are other causes for headache that the practitioner has to search for, but I am in this paper concerned only with headaches that are ocular in origin and of a chronic nature, and they afflict the largest class of sufferers and yet are most easily amenable to treatment. All patients suffering from headaches should be carefully "refracted," and in *eighty per cent. of cases* a proper pair of glasses will bring about a cure. After all, a properly prescribed pair of glasses is the best and least harmful therapeutic agent that we have in the treatment of headaches.

917 SPRUCE STREET.

MEDICAL INSPECTION OF SCHOOLS.*

From the Point of View of the Health Officer.

By J. F. EDWARDS, A. M., M. D.,

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Conspicuous among present day measures for the conservation of health are those directed toward infancy and childhood. Society is organizing to prevent waste at the threshold of life and its united effort has found expression in the American Association for the Study and Prevention of Infant Mortality, whose initiation took place under the auspices of this body.

Health boards recognize that the prevention of infant mortality is one of its most important fields of activity, and communities point with pride to their decreasing death rate at this period of life.

In medical inspection of schools and school children, the health officer recognizes the most favorable medium for continuing the work of conservation through the most important years of growth and development. Indeed, he looks farther than this and sees in the schools his hopes of ultimate success in the control of preventable diseases and the establishing of right conditions of living.

The health officer of to-day realizes that his work has a positive and constructive side, as well as a negative or repressive one. The enforcement of quarantine laws, the abatement of nuisances, and similar *ex post facto* activities, which not long ago were considered the chief functions of the health officer, though necessary when occasion arises, represent work that can, at best, be only of temporary value. Even when his machinery for the control of transmissible diseases is working smoothly, when his measures for the correction of environmental conditions which exert an unfavorable influence upon the health of the community, are carried out, when food, water, and milk are no longer a menace, when he has done what he can to save people in spite of themselves, the health officer realizes that further progress and real success depend upon the knowledge and consequent cooperation of those whom he serves. He seeks to make his department an educational force in the community, but he finds that the education of the present adult generation in matters relating to health is difficult. The mass of the people have their ideas and prejudices firmly fixed, and half truths, built upon custom and tradition, are held tenaciously. It is for this reason that he turns to the school children of to-day, hoping that they, under the proper guidance and instruction, may acquire knowledge of health matters that will insure intelligent cooperation in public health measures and in habits of right living. This, however, involves the positive side of health education and health supervision rather than the negative side of inspection alone.

Medical inspection as practised in the majority of instances to-day must be looked upon as an expedient, made necessary, however, by conditions existing to-day in our schools and among our school population, but one that will be substituted by medi-

*Read at the Conference on Conservation of School Children, Lehigh University, South Bethlehem, Pa., April 4, 1912.

cal supervision when the parents of to-morrow shall have been taught the principles of hygiene and right living as they should be taught in our schools and when schoolrooms, school curricula, and the home itself no longer act as predisposing causes of disease and physical inefficiency. While working toward this ideal, however, we must do what we can for the present generation by medical inspection and supervision. This is necessary to-day, and large expenditures of money by the State for this purpose are justified, because of the fact that a large proportion of school children suffer from preventable and remediable diseases or defects that have been unrecognized by their parents and for this reason have not received the necessary attention.

Because of transmissible diseases, these children menace both the health and the school attendance of other children, and, because of these and the noncommunicable diseases or defects, their own physical development is retarded and they do not receive full value from their school course. Of no less importance is the medical inspection of the schoolrooms, the school environment, and school methods. Not only must the children be protected from infection and their physical defects be recognized and corrected as far as possible, but the influence of the school itself must be such as will conserve and promote their health.

It is apparent that many problems are involved and that upon their proper solution depends the health of the school child and the future physical vitality of the race. Both the health and the educational authorities are alike interested. They may look at the problem from different viewpoints, one emphasizing the improvement of health because this would lead to greater mental efficiency, the other emphasizing increased physical efficiency because of its bearing upon public health. The immediate object is the same—the health of the child. Whether the educational or the health authorities can best do the work has been the basis of much discussion. Either one can do it when full cooperation exists, while, where this is absent, no system can meet with complete success. There can be no division of responsibility. It would be both unsatisfactory and expensive to have two sets of officials engaged in inspection work. One or the other must control and furnish the machinery. It matters not to the taxpayers who are the controlling authorities. They must, in either case, foot the bill. It is ultimately a question of efficiency. In the United States the question of school medical inspection has, in most instances, been one of expediency governed by local conditions, depending upon the readiness or equipment of one or the other authority to do the work. The practice is nearly equally divided with a probable tendency toward control by the school authorities themselves. It is not the purpose of the writer to produce arguments in favor of control by one or the other authority.

The health authorities in every community have well defined duties to perform, but to many questions relating to public health they have somewhat the same relation as the modern charity organization society has to the various philanthropies of the community. They must see that health measures

not necessary to be specifically under their control are organized properly, and they must act as a clearing house of information and guidance, the object being to see that health work is being done efficiently, without duplication, and in correlation with its own direct activities. In the majority of instances the initial activity of medical inspection has been directed toward the control of transmissible diseases. It has been frequently stated that the schools offer a favorable medium for the spread of infectious diseases, especially those commonly known as the contagious diseases of childhood. Some recent studies seem to indicate that the importance of the school sessions as a causative factor in the prevalence of these diseases has been overestimated. Be this as it may, this negative phase is of much less importance than the fact that the schools offer a vantage ground for the control of such diseases. Not only are cases among the school children themselves excluded, but other unreported cases in the family, or in families that have no school attendants, are detected and brought under supervision by the health authorities.

Through the school attendants, combined with home visitation, and by a well organized intelligence service, practically the whole child population is brought under a surveillance such as could not be established except by school inspection. A number of such unreported cases, especially of measles and whooping cough, occur, largely due to the fact that these diseases are not regarded as serious, especially among the poorer classes, and for this reason a physician is not consulted. The same is true of mild cases of diphtheria, which are thought to be cases of simple sore throat or tonsillitis. Where medical inspection exists, the presence of an epidemic does not necessitate the closure of the schools. Diphtheria offers the best example of the possibility of efficient preventive measures. The taking of cultures will serve to eliminate danger from school attendance where this disease prevails. Medical inspection, by preventing infection, not only conserves the health of the school children and of the whole child population, but also serves to prevent loss in school attendance. While it may be assumed that this is the chief function of inspection by boards of health, and it is generally conceded that this work can best be done by these bodies, on account of the legal power over transmissible diseases expressly vested in them, this phase of inspection is of even less importance than that for the detection and correction of noncontagious diseases and developmental defects, and of faulty school hygiene. This has, however, not appealed as strongly to the general public as inspection for contagious diseases. This has been very generally recognized to be a necessary measure of community protection. In many places, inspection for contagious diseases is the only form that has reached a considerable degree of completeness and, in some instances, forms practically the only activity. As judged by available reports, this phase occupies about seventy-five per cent. of the time and energy spent in inspection. Such inspection, though valuable as far as it goes, does not have as far reaching effects upon the health of the school children as the correction of defects and the plac-

ing of the child in the proper hygienic environment while at school, combined with the intelligent adjustment of the school studies to the capabilities of the child.

While the statistics relating to contagious diseases may be regarded as definite and reliable, there is a lack of uniformity in statistics of other diseases and defects.

With the progress in medical inspection that now obtains in the United States, there should be a greater uniformity. The time has come to have some standardization of scope and methods. There is a vast amount of literature on medical inspection, yet seldom are reports and statistics comparable. There is need for the correlation of statistics so that practical results that may serve as a basis for prevention and correction, may be deduced therefrom. It accomplishes but little good to pile up statistics unless these are combined in such a way as to throw light upon the causal conditions. If, for example, we have statistics of malnutrition, we need to know what are its causes, whether simply due to underfeeding, to home conditions, or to bad teeth. Neither are there definite standards of sanitary requirements for school buildings. Opinions differ greatly as to what constitutes physical defects, concerning which action is to be taken.

The greatest variations exist between the statistics of different localities. This variation is greater than could be accounted for by difference in physical development and is most probably due to difference in standards. While it is undoubtedly true that sufficient statistical data are available to emphasize the need of inspection, it would be difficult to form from them any satisfactory conclusion as to the physical condition of our child population as a whole. Hence, the keeping of records becomes a matter of the greatest importance. We are greatly in need of statistics which bear upon the physical status of our whole population. No such data are available for the United States as exist in some European countries, where registration of vital statistics has been fairly complete for a long period of years, and where, also, compulsory military service affords an opportunity to collect data relating to the physical development of a large part of the population. In the United States medical inspection by statute can, at best, be a concern of States as the largest unit, but at present, medical inspection in any comprehensive way is enjoined by but few States. In the majority of instances it is a matter of smaller units, of cities and towns. There is no reason, however, why these should not employ methods found by practice to be the best. While adopting the standards already reached, every department of medical inspection should also be a bureau of investigation and research in problems of health and development in their relation to the science of pedagogics.

The work of the trained physician, one who has become an expert in problems relating to the school child, is essential in our modern scheme of education. Something more adequate than ordinary routine inspection is necessary, however, in order to secure information upon which may be founded an effective system of education, which has for its basis the physical well being of the child. It has

been well said that "mental development without a true physical equivalent is unstable and undesirable." The child whose brain is developed at the expense of his body is, from the point of view of society, an expensive luxury.

Medical inspection is necessary in order that the teacher may be advised as to what should be the daily demands from each pupil and in order that his studies may not overtax his capacity; and, on the other hand, that the idler may receive the necessary stimulus.

When children are excluded on account of transmissible diseases, much stress is laid upon the necessity for continuing exclusion until the danger period for others has passed, but it is also the province of the inspector to consider the children themselves, whether they can resume their studies without injury to their own health. Many parents lose sight of this consideration and send their children back to school, where, in their attempt to make up for lost time, their health becomes permanently impaired.

Scarcely secondary in importance to the medical inspection of school children themselves is that of the school environment. Much of the beneficial effect of inspection of the school children will have been lost if the sanitary and hygienic conditions in the schoolroom and on the school premises are such as impair their health. There is no class of public buildings in which sanitary requirements and hygienic fitness have been more disregarded than in some of our older school plants. The Committee on Medical Inspection of the American Medical Association quotes a writer as saying that the value of the public school buildings in America is \$700,000,000, and states: "One half of them are so abominable that they should be torn down forthwith and a quarter more of them should be reconstructed."

The committee makes the following recommendations:

1. The endorsement of certain standards and requirements in the planning and maintenance of school buildings and grounds by State and national educational and medical organizations.
2. The enactment of legislation which will define these standards and insure the erection and maintenance of school buildings in accordance therewith.

The most common hygienic defects found in the school buildings themselves are inadequate ventilation, improper lighting, and faulty location and equipment of toilet conveniences. Schoolrooms are often overcrowded and when this is combined with insufficient provision for change of air, the result is disastrous to the health of the child and forms the chief cause of morbidity among our school population. The problem of ventilation of schoolrooms is extremely difficult and in its solution the educational authorities need the advice of the physician or the sanitary engineer. In warm weather the problem is simple, needing only the opened windows, but in cold weather it is more complex, the difficulty being largely a question of heating and humidity. To approach the proper standard, each child should have at least twenty square feet of floor space, 300 cubic feet of air space, with a change of air every eight minutes. During recess periods the windows should be opened so that there may be a complete change of air. Dust should be

eliminated as far as possible by proper cleaning methods, both of blackboard and floors.

The necessity for open air schools for certain classes of children is recognized to-day and has become a matter for the attention of educational and health authorities. Midway between these and the ordinary schools are what may be termed cold-room schools where windows are kept widely open in all seasons. These are much less expensive to maintain and are available for every community. The supervision of school appliances is a necessary part of inspection. The desk should be suited to the child. Many instances of faulty development may be traced to improper positions assumed during school hours.

The physical characteristics of textbooks is a question of importance as affecting the vision of school children. The kind of type, the width of line and margins, and the finish of the paper are all questions that need the careful consideration of the student of school hygiene.

The common drinking cup is a prolific source of infection and must give away to bubbling fountains or the individual paper cup. Schoolbooks and pencils may be a source of infection; the latter at least should not be used interchangeably, and books used by a pupil excluded on account of one of the contagious diseases should be destroyed, for we yet lack a satisfactory method of disinfecting books.

The hygiene of the schoolroom needs constant supervision, for the children are compelled by the State to attend school and, therefore, should provide them with the most approved hygienic environment.

One of the most important phases of medical inspection and supervision of schools and school children is that which links it to the home itself. Medical inspection loses much of its efficiency unless its machinery is extended to securing the cooperation of the parents in giving the children the necessary attention for the diseases and defects found by inspection. The influence of the school should go further than this and be exerted toward the correction of living conditions that affect the children injuriously. For this work the school nurse is essential, and in every complete system of inspection, a force of nurses, trained as social workers, is necessary to carry out the work to ultimate completion. They, better than the educator or even the physician himself, can succeed in bringing home the responsibility to the parents.

Much of the objection to medical inspection has arisen because of the belief that it is too paternal in its scope, that it takes away the responsibility from the parents. In practice, however, the reverse is true. Instead of taking away parental responsibility, it develops it, because it increases their knowledge of their children's needs. In many homes the mere taking home of a slip, directing the parents to take the child to their family physician, is not enough. They do not see the necessity for such a procedure. Their child is able to be up and about, and they cannot see any need for taking it to a doctor and incurring extra expense. It is in such cases that the nurse can give the necessary explanation and if, in addition, the family is unable to pay for treatment, can make arrangement

for it at some hospital, or outpatient clinic. This form of follow up treatment is most important. Without it the percentage of corrections is small.

In the securing of corrections, the cooperation of the physicians, the dispensaries, and hospitals is necessary, and here lies a most difficult problem. It is necessary to avoid increasing dependency and, therefore, medical service should not be placed on a purely charitable basis, except when this, after careful investigation, is found to be necessary. In addition to the work of the nurse in the home the school has a most important function as a centre of social work in the community. Much can be accomplished by small groups in mothers' classes and by lectures to the parents that will bring them into closer association with the work of the schools.

The chief need for health work in connection with the schools to-day is for central supervision of all work relating to the health of the school child. In each large city there should be a department of school hygiene under the supervision of a trained physician, who can give his time to the work, acting as adviser to the school authorities and as an executive in carrying out the different lines of work. Among other activities, in addition to supervision of medical inspection and supervision of the hygiene of the schoolroom, would be the physical examination of teachers and their instruction in practical hygiene; the outlining of a course of instruction in hygiene for the pupils themselves; the directing of work in psychoclinical problems relating to the child, including subnormal and supernormal children; supervision of playgrounds and playground schools; supervision of physical training and athletics; and, finally, this department should make use of all information gained in school for the improvement of community health. In rural districts this work could well be done by a medical officer, acting through the office of the county superintendent.

In any system the closest cooperation between the health and educational authorities is essential.

CHRONIC ULCERS OF THE LEG.

A Few Words as to Their Treatment.

BY WILLIAM BRADY, M.D.,
Elmira, N. Y.

Pain or inflammation is the symptom which usually brings the patient with a chronic ulcer under the physician's charge. The first requisite is to gain the patient's confidence. If there is exquisite pain and sensitiveness it is well to be extremely gentle with the first dressing. Cleanse the ulcer with warm normal salt solution, dry carefully with wisps of cotton, and dust on a light application of an anesthetic antiseptic powder; then apply a sterile petrolatum gauze pad and a light packing of cotton and bandage from toes to knees. This will invariably give great relief from pain and inspire the patient's confidence.

If inflammation or eczematous erythema is pronounced in the skin about the ulcer, a large wet dressing is required, with perfect rest for a few days. This dressing had better be normal saline

solution for the first few times, kept wet by pouring fresh warm solution through a window flap in the oiled silk over the gauze. Always dispense the solution, tinted, if you like; never instruct the patient to apply "salt water." The advantage of normal saline solution dressing is that it gives more comfort than any other wet dressing, it encourages drainage, and reduces the inflammation in the skin as rapidly as any antiseptic, without injuring the healing capacity of the ulcer.

Should one find the ulcer covered with an old slough, brewer's yeast, if obtainable fresh, every two or three days makes an excellent dressing. It causes some little smarting for a time, but it hastens the separation of slough and seems to feed or tone the granulation tissue underneath. It must be changed twice a day, covered with oiled silk or other impervious protective, and applied warm, without antiseptic contamination. Yeast must be kept cold.

In old, dry, scaly ulcers with little or no secretion, the suggestion of Wright should be followed: Apply a wet dressing of one tenth of one per cent. of citric acid and four per cent. sodium chloride solution, and administer citric acid in drachm doses every three or four hours for a day or two. This will start a serous drainage from the ulcer and institute the processes of repair. I have found this effective in many cases after much discouragement with other treatment.

For exuberant granulations there is but one cleanly remedy, the scissors. Pressure applied by means of adhesive straps, gauze pads, and proper bandaging will take care of moderately high granulations. Always bear in mind that skin will not grow up hill.

In varicose ulcers a very effective procedure is elevation of the limb. Urge the patient to keep the leg on a pillow on a chair. Prescribe regular elevation in this manner: Let the patient lie on a bed next the wall, or with the feet toward the head-piece; then elevate the feet or the foot to a vertical position, which is to be maintained for so many minutes so many times a day. This manœuvre should be insisted on in the morning, just previous to the application of the bias flannel, linen elastic, or rubber woven bandage which all ulcer patients must wear habitually.

Once the granulations assume something like a healthy, smooth, glistening, moist surface, at or near the level of the surrounding skin, the *less one does the better*. A simple sterile petrolatum dressing, merely to keep the gauze from sticking to the wound, is all that is ordinarily required. When the granulating surface contracts to an ulcer the size of a dollar, a neutral powder—sterile talcum, for instance—freely applied to the carefully cleansed and dried ulcer, covered with a few layers of gauze, and strapped in place with adhesive strips, is the best management. This should not be disturbed oftener than every fourth or fifth day—or even less frequently if there is no trouble from serous discharge.

Asepsis, not antisepsis, should be the physician's guide in the management of ulcers. I have seen physicians and nurses ruthlessly sponging off the almost invisible layer of embryonal epithelium at the edge of an ulcer, evidently thoughtless of the fact

that bichloride or other germicide kills new epithelial cells as readily as it kills cocci. The patient often does great damage to his ulcer by the use of carbolic acid and similar so called "healing salves." Let the physician at least do no harm.

There is generally some constitutional state demanding attention. Digitalis or the nitrites are frequently indicated. Iron, best given as tincture of ferric chloride in small doses in lemonade after meals, renders good service in elderly patients. Bromides at night for the nervous ones, and advice about vegetarianism in its relation to auto-toxemia by intestinal putrefaction of protein is to be given the plethoric ones.

Other than sterile petrolatum, salves have no place in the treatment of chronic ulcers, in my opinion. After several years of experimenting with various highly recommended ointments, in hospital and private practice, I feel that they are best omitted. The aim should be to direct Nature, and at the same time to protect the patient from that impulsive dame's exuberance. We must remember that while Nature is always inclined to excess of zeal and often requires restraint, still she can't be hurried in her work. No human power will make skin grow faster than an eighth of an inch a day—on a chronic leg ulcer.

Kneading massage of the tissues around and above the ulcer at each dressing is helpful to the venous return circulation. The best time for massage, however, is during the elevation of the leg.

GASTRIC SYMPTOMS IN INCIPIENT TUBERCULOSIS.*

Analyses of the Stomach Contents in Fifty Cases.

By M. M. JACOB, A. B., B. S., M. D.,
Philadelphia,

Instructor in Diseases of Stomach and Intestines, Polyclinic Hospital; Physician to the Phipps Institute.

Among the many symptoms known to be present in pulmonary tuberculosis, gastric disturbances play an important rôle in the early and later stages respectively. In the fifty cases which I have studied in the Phipps Institute since May, 1910, all of them strictly incipient, gastric symptoms were the first to attract the patient's attention, or at least were most prominent among their other symptoms in all but eight. While of frequent occurrence in the terminal stages of tuberculosis, gastric disturbances may appear at any time during the course of the disease. Indeed, a not uncommon onset is that which manifests itself by symptoms that are entirely referable to the stomach (Landis).

Nausea, loss of appetite, distress and fullness after eating, belching, and vomiting, which in women is similar to vomiting in pregnancy; all these symptoms may be the first signals of pulmonary tuberculosis. These symptoms alone or combined, associated with pain and tenderness in the epigastrium, may simulate real organic disease.

Errors in diagnosis are easily made if the exam-

*Read at the Southeast Branch of the Philadelphia County Medical Society, December 8, 1911.

ination is made in haste, and quite often the symptoms will be diagnosticated instead of the real disease. In the majority of cases, the patient has a slight cough, particularly in the morning, moderate or entire absence of expectoration, some loss of weight, slight elevation of temperature, and an accelerated pulse. The general appearance of the patient is commonly good.

Associated with the foregoing symptoms, or absolutely independent of them, the patient complains of a poor appetite, fullness and distress, pain after meals, referred to the epigastrium and radiating to the side or even shoulder, vomiting, and constipation. Physical examination of the chest may reveal nothing more than a slight impairment of the percussion note and prolonged expiration at one apex.

Pathologically there are no changes in the stomach peculiar to incipient tuberculosis itself. Rarely we find a gastropptosis or enteroptosis or an ulcer, and if they do exist probably they have been present long before the patient had any pulmonary lesion. On the other hand, the more advanced cases frequently present chronic gastritis, gastropptosis, or enteroptosis.

The only lesion of the stomach which can be directly attributed to tuberculosis is the tuberculous ulcer. The reason that tuberculosis of the stomach is rare is probably the fact that this organ contains very little lymphatic tissue, and that it is very deeply seated. Furthermore, the tubercle bacilli are but a short time in contact with the gastric mucosa. Some authors assert that the gastric juices will destroy the tubercle bacilli, but experiments made by Falk, Strauss, and Wurtz, *in vitro* or *in vivo*, show that the tubercle bacilli retain their virulence and power of producing disease. Most observers agree that for a tuberculous ulcer to develop there must be a preexisting lesion of the gastric mucosa which enables the tubercle bacilli to gain a foothold (Landis). Simple ulceration is comparatively common, occurring in the same frequency as in the other diseases, namely, about two per cent. In 480 autopsies at the Phipps Institute nontuberculous ulceration of the stomach has been met with in six instances.

The stomach disturbances in incipient tuberculosis are hard to explain. They are due possibly to certain chemical compounds. Some believe that they are produced mechanically by direct compression of the vagus, by the swollen glands. Others believe that they are due to fever. It has been noted that individuals with long standing gastric disturbances are apt to have an increase of these symptoms if pulmonary trouble develops.

The consensus of those who have investigated this subject seems to be that in the early stages of pulmonary tuberculosis the total acidity is either normal or increased, but as the disease advances the efficiency of the gastric juice becomes impaired, the acid being either quantitatively or qualitatively reduced. So far as the early stages are concerned my results are in agreement with those previously published. In only one instance was the total acidity below normal; in this case the absence of acid was due to an achylia of long standing.

Here, briefly, are the cases I have studied, with their total acidity and free hydrochloric acid; also the stomach complaint of each individual case:

TABLE I.

STOMACH CONTENTS IN INCIPIENT TUBERCULOSIS.

DR. M. M. JACOB'S CASES.

J. S.	Total acidity 76, HCl. 39, T. 99.4° F., pyrosis, pepsin positive, no retention.
C. T.	Total acidity 55, HCl. positive, gastric dist. negative, T. 99° F.
H. L.	Total acidity 70, HCl. 32, T. 99° F., appetite poor, pain in epigastrium, relieved by alkalies.
S. M.	Total acidity 64, HCl. 30, T. no record, appetite poor, vomiting one hour after meals, relieved by bismuth.
J. B.	Total acidity 76, HCl. 39, T. 101° F., vomiting, pain in epigastrium, extended to right side of gallbladder.
M. S.	Total acidity 60, HCl. 30, T. 100° F., vomiting, morning on arising.
M. M.	Total acidity 72, HCl. 30, diarrhea, vomiting, pain.
M. B.	Total acidity 68, HCl. 31, pain right after meals.
Em. M.	Total acidity 93, HCl. 45, T. 101° F., appetite poor, nausea, constipated.
M. G.	Total acidity 58, HCl. 29, appetite poor, fullness and distress after meals.
C. D.	Total acidity 65, HCl. positive, vomiting, diarrhea, pain after eating.
J. D.	Total acidity 34, HCl. none, diarrhea, pain all over abdomen.
B. A.	Total acidity 65, HCl. 39, appetite poor, belching and fullness and distress after meals.
R. S.	Total acidity 64, HCl. 31, T. 100° F., appetite poor, fullness and distress after meals.
B. K.	Total acidity 60, HCl. 34, chief complaint, poor appetite; bad taste in mouth.
Y. C.	Total acidity 62, HCl. 30, T. 99° F., gastric disturbance negative.
R. G.	Total acidity 69, HCl. positive, poor appetite, pyrosis one hour after meals.
S.	Total acidity 70, HCl. positive, constipated, pain in epigastrium, associated with diarrhea.
L. C.	Total acidity 70, HCl. positive, pyrosis, appetite decreased, sour taste in mouth.
D. C.	Total acidity 71, HCl. 39, appetite poor, constipated, pain.
A. S.	Hypermotility, HCl. positive (only the wash water), T. 99° F., appetite poor, diarrhea.
A. F.	Total acidity 50, HCl. 21, constipated, pain lower abdomen.
Y. S.	Total acidity 45, HCl. 23, appetite poor, constipated, pain in epigastrium, localized xyphoid.
M. R.	Total acidity 60, HCl. positive, gastropptosis, appetite poor, constipated.
C. S.	Total acidity 69, HCl. positive, gastric disturbances, negative.
M. G.	Total acidity 69, HCl. 38, pain in epigastrium, 2 to 3 hours after meals localized in duodenum.
H. L.	Total acidity 72, HCl. positive, constipation, nausea, tenderness left iliac fossa.
B. T.	Total acidity 64-69, HCl. 30, appetite poor, vomiting, constipation.
J. S.	Total acidity 75, HCl. 31, appetite poor, diarrhea, pain after meal relieved by alkali.
C. S.	Total acidity 51, HCl. positive, vomiting, pain relieved by alkali.
A. W.	Total acidity 65, HCl. 31, T. 100° F., gastric disturbances negative.
B. M.	Total acidity 60, HCl. 31, T. 99° F., appetite poor, fullness and heaviness after meals.
D. W.	Total acidity 60, HCl. 35, gastric disturbances negative.
J. S.	Total acidity 75, HCl. 34, T. 100.8° F., pyrosis, vomiting at night.
M. G.	Total acidity 60, HCl. 28, T. 99.4° F., appetite poor, heaviness a few hours after meals.
A. G.	Total acidity 65, constipated 4 to 5 days.
E. F.	Total acidity 70, HCl. 38, T. 99° F., appetite poor, vomiting in the morning.
H. McH.	Total acidity 69, HCl. positive, T. 101° F. to 103° F., regurgitating of food after eating.
J. C.	Total acidity 70, HCl. 34, gastric disturbance negative.
H. R.	Total acidity 70, HCl. 39, appetite for 9 weeks, constipated.
S. G.	Total acidity 60, HCl. 34, T. 98.6° F., P. 80, R. 20, constipated, pain.
F. S.	Total acidity 59, HCl. 30, appetite poor, nausea.
S. C.	Total acidity 71, HCl. 28, T. 99° F., appetite poor, nausea, constipation.
F. B.	Total acidity 65, HCl. 32, appetite poor, nausea, pain epigastrium right after meals.
K. B.	Total acidity 60, HCl. 28, T. 98.6° F., appetite poor, fullness, belching great deal.
K. S.	Total acidity 60, HCl. positive, constipated, pain, pyrosis.
E. S.	Total acidity 60, HCl. 31, T. 100° F., gastric disturbance negative.
I. B.	Total acidity 55, HCl. 21, gastric disturbances negative.
P. R.	Total acidity 80, HCl. positive, T. 99° F., vomiting one hour after meals, relieved by hydrogen peroxide.
I. R.	Total acidity 73, HCl. 29, diarrhea, pain in epigastrium, no mucus, no retention.

TABLE II.

The following table shows the different gastric symptoms complained of:

No gastric disturbance	8
Poor appetite, fullness, and distress after meals	22
Vomiting, not associated with cough, the majority one hour after meal	11
Constipation, sometime associated with diarrhea	10
Pain in epigastrium, and hepatic region, sometimes pain in back	21
Nausea, belching, fullness after meals	4
Regurgitation, belching, fullness and distress after meals	1
Diarrhea	4
Pyrosis	5

*One patient had diarrhea with hypermotility. I could not obtain anything, as the stomach was empty. The wash water was positive with Congo.

As can be seen in the following table, the total acidity ranges from 34 to 93, the majority (40) being between 60 and 75.

TABLE III.

Total acidity	76	2
Total acidity	55	2
Total acidity	70	6
Total acidity	64	3
Total acidity	60	9
Total acidity	72	2
Total acidity	68	1
Total acidity	93	1
Total acidity	58	1
Total acidity	65	5
Total acidity	34	1
Total acidity	62	1
Total acidity	69	5
Total acidity	71	2
Total acidity	50	1
Total acidity	45	1
Total acidity	75	2
Total acidity	59	1
Total acidity	73	1
Total acidity	51	1
Total acidity	80	1

As the normal acidity after an Ewald meal is around 50 to 55 for forty-five minutes, we may consider as one of hyperacidity any case of 60 or above. Any case of 55 we may consider normally high.

All of these patients showed good digestive power for the Ewald's test breakfast. In no instance was there a retention or an excessive secretion of mucus.

In none of the cases was any difficulty encountered in using the stomach tube, nor were there any untoward effects following its introduction. In regard to the last statement, however, it must be borne in mind that all of these cases were in the incipient stage of the disease. Patients with advanced tuberculosis of the lungs, especially if cavitation is present, should, as a rule, not be subjected to this procedure, as there is some danger, through a paroxysm of coughing, of inciting a hemorrhage.

The majority of the patients had fever, ranging from 99° to 103° F. I had no opportunity of using the stomach pump in my patients more than once, as they refused to take it the second time, except on two occasions. They had elevation of temperature on both occasions with high acidity, contrary to Brieger's finding, who believes that the acidity is low with no temperature. Some of my patients had no fever and yet the average acidity was above the normal.

CONCLUSIONS.

1. Pulmonary tuberculosis in its incipient form may present gastric symptoms similar to typical organic or inorganic stomach lesions.
2. Gastric disorders may be considered as among the first symptoms of pulmonary tuberculosis.
3. Hyperacidity or normal acidity is the rule in incipient tuberculosis.
4. The secretion of hydrochloric acid is independent of fever.

1312 SOUTH FIFTH STREET.

Physicians in Europe.—The number of practising physicians is given for Europe as about 200,000, according to late statistics: England, 48,000 (London, 18,000); France, 32,000; Germany, 26,000; Italy, 24,000; Russia 20,000; Austria, 13,000; Belgium, 12,000; Spain, 8,000. The remainder of 18,000 is divided among the other European states.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXX.—How do you treat subacute and chronic laryngitis? (Closed January 15th.)

CXXXI.—How do you treat psoriasis, and with what success? (Answers due not later than February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. Ben N. Wade of Portland, Oregon, whose article appeared on page 244.

PRIZE QUESTION CXXXIX.

THE MANAGEMENT OF CHRONIC
ULCERS OF THE LEG.

(Continued from page 245.)

Dr. Peter C. Ten Eyck, of Syracuse, N. Y., observes:

Inasmuch as with any of the predisposing causes, each of itself would require a separate article, I will leave the general treatment to the physician's own methods, and discuss only the local treatment, meanwhile emphasizing the necessity for general treatment.

With chronic leg ulcers, there is one condition which I find is apt to be overlooked or neglected, and that is, the adhesion of the base of the ulcer to the underlying bone or muscle fascia. The tissues underlying the floor of the ulcer become edematous, fibrous, of low vitality, contain numerous bacteria and poisons absorbed from the ulcer, and the blood supply is poor. The older the ulcer, the more marked are these conditions, and the development of this infected core leading to the deeper structures prevents healing of an ulcer which appears superficial.

The most important part of the whole local treatment is the process of loosening the base of the ulcer from the underlying bone or fascia, and restoring vitality to this intervening "core." This is most satisfactorily done by proper local massage, particularly by a lifting of the ulcer, a stretching of the intervening tissues, and massaging the edema as far as possible out of the leg well above the level of the ulcer. This should be done at least once daily. The edema as a rule extends for some distance beyond the margins of the ulcer (as well as underneath it), and materially interferes with the

nutrition of the tissues, so that they readily melt away even in the presence of weaker poisons.

As to antiseptics, I have discarded all ointments because they soften the skin, and prevent drainage. I have found nothing to compare with one half of one per cent. carbolic acid solution, applied to a thin dressing composed of oil silk next to the ulcer, with cotton overlying this, the whole kept moist only. Gauze I have found too coarse and apparently irritating. Of equal importance with this is the daily exposure of the bared ulcer to the antiseptic and drying influences of air and sunlight. Even a moist dressing constantly applied will devitalize the skin, though carbolic solution is mildly stimulating to the ulcer. I am convinced that if predisposing causes are eliminated or effectively treated, massage and the simple exposure of a chronic ulcer to the air and sunlight will cure in the absence of all other forms of treatment. I have found that strapping and other forms of treatment which do not provide for free drainage and for the vitality of the skin, are not effective. I have also found that it is advisable to keep the skin of the leg dry by the use of drying powders if necessary, and to so raise its vitality that the lodgment and growth of germs which so easily reach this part of the body are prevented.

If the patient finds it necessary to be up and about during the day, the edema of the leg from whatever cause should be prevented by a properly applied elastic mesh bandage (pure gum bandages sweat the leg and are therefore harmful), the bandage to be discarded during the night and the leg raised to a level higher than the body still further to reduce the edema.

In conclusion, with chronic leg ulcers the skin should be kept dry by using antiseptic drying powders; the ulcer dressed during the night with very mildly stimulating antiseptic packs, and during the day also when not exposing it to the air and sunlight; the whole leg from its distal extremity to a line well above the level of the ulcer massaged daily, particular care being taken to reduce the waterlogged condition of the tissues in the immediate neighborhood of the ulcer, and beneath it. General good health should be restored as far as possible, digestion perfected, constipation prevented, and any other unfavorable conditions treated in a most thorough manner.

The treatment of chronic leg ulcers, above outlined, will in every case produce uniform, encouraging, not to say brilliant, results.

Dr. Walter T. Dannreuther, of New York, maintains that—

The multiplicity of methods of treatment recommended for the cure of indolent ulcers is a fair indication that no single one will invariably prove satisfactory and efficient. While certain well defined rules may be formulated, the surgeon must exercise his judgment and common sense in each case to obtain universally gratifying results. Each step in the treatment should be carried out with a definite object in view, and progress can then be made by advancing upon the previous firm foundation. The following steps should be taken in order:

1. Improve the circulation of the region.
2. Cleanse the ulcer and surrounding skin.

3. Subdue existing inflammation.

4. Remove necrotic tissue from the surface of the ulcer.

5. Promote absorption of the induration.

6. Stimulate granulation.

7. Support the part with equalized pressure.

8. Encourage cicatrization.

9. Have the patient wear a permanent support.

10. Improve the constitutional condition.

Correct posture will greatly enhance the venous circulation, and the patient should therefore be confined to bed or a chair, with the leg elevated. Such position, maintained continuously, is ideal, and will materially hasten recovery. Unfortunately, however, these patients usually can ill afford to neglect their occupation and these instructions cannot be followed except when the patient is entirely under the physician's control.

The ulcer and surrounding skin should be vigorously scrubbed with a soft brush or gauze wipe. If all surgeons would use soap and water as regularly as they employ antiseptics, the latter could often be dispensed with and healing would occur much more rapidly. After drying thoroughly, the part should be rubbed with alcohol to loosen scales of dried discharge and devitalized skin.

If inflammation is present, it can be reduced by daily applications of large, wet dressings of Thiersch's solution or aluminum acetate, covered with a firm gauze bandage. Asepsis may be secured by painting the ulcer with tincture of iodine at each dressing. The gauze must be kept constantly wet until the inflammation is subdued. If, however, there is no evidence of inflammatory reaction and the ulcer is dirty and foul, it should be cleaned up by dressing with balsam of Peru for a few days. The constant warm bath by immersion in saline solution is another excellent method of treatment.

The necrotic layer often observed on the surface of an ulcer is most easily removed by dissecting off with thumb forceps and scissors, followed by delicate curettage.

Absorption of the indurated tissues at the base and margins of the ulcer is best promoted by making three or four crisscross incisions, carried well through the cicatricial tissues at the base and edges. Alternate hot and cold douches and massage are useful adjuncts to the incisions.

As soon as the inflammation is controlled and the ulcer looks clean, the leg should again be thoroughly cleansed and then shaved from ankle to knee. The ulcer should be sprinkled with a generous layer of powdered naphthalin crystals (to stimulate granulation), and then covered with a layer of lint covered with diachylon ointment.

This application should be left undisturbed for ten days, meanwhile exerting constant equalized pressure over the whole surface of the leg. This is best done by strapping from ankle to knee, from below upward, with zinc oxide adhesive plaster strips, three quarters of an inch wide and long enough to encircle the leg with overlapping of the ends. The edges of each strip should also overlap the one preceding. When complete, this dressing is covered with a firm bandage or elastic stocking. To remove, saturate with gasoline, cut from below upward, and strip off in one sheet. If the surface of the granulation tissue is still some distance from

the skin surface, another similar dressing may be applied. As soon as the granulations approach the surface, however, the ulcer should be irrigated with saline solution and Thiersch's skin grafts spread upon its surface. These grafts must overlap each other and the skin margins, and should be covered with several layers of silver leaf. The leg can then be restrapped for two or three weeks, protecting the area of the ulcer by smearing the under surface of the superimposed strips with petrolatum. This dressing must be removed very carefully, and the ulcer will be found to be healed.

The patient should be instructed to wear a firm elastic stocking continuously, protecting the delicate skin by wearing a white silk or cotton one underneath.

Throughout the course of local treatment the patient's general condition should receive careful attention. The emunctories must be kept active and tonics supplied in the form of fresh air and nutritious food. *Nux vomica*, mercury, arsenic, and potassium iodide may be administered with benefit.

Dr. A. H. Powers, of Boston, remarks:

It is doubtless true that the veins are the vessels most frequently at fault, but at times the arteries may fail to carry an adequate supply of blood, hence there will be deficient nutrition and an ulcer once begun will heal slowly or not at all.

The simplest method of treating the veins is by supporting them by a bandage or elastic stocking. The best bandage everywhere available is of flannel cut on the bias. This must be applied in the morning before getting out of bed from the toes as high on the extremity as the veins are enlarged, but always to the knee. This bandage should be applied as snugly as can be borne with comfort and the ulcer should be dressed before it is applied.

The next and more radical treatment of these veins is the excision of the larger ones, the technic of the operation being given in good works on surgery. In a syphilitic patient specific treatment suited to the case should be given, but my personal preference is for mercuric iodide in not too heavy doses. With suitable treatment of these causes accomplished we are prepared to consider the local treatment.

First to be considered is the prophylactic. We must place the skin in a hygienic condition and maintain it thus. All eczema and dermatitis should be promptly treated and the skin made as nearly aseptic as possible and kept in that condition. One agent most valuable in the care of the skin is alcohol from sixty to seventy-five per cent. used frequently and possibly followed by a little carbolic oil or petroleum product. In this manner many if not all the chronic ulcers of the legs may be avoided.

When the ulcer is formed the first attempt should be to render it aseptic. Different means must be employed, varying according to the character of the ulcer. In some cases, swabbing the whole surface with ninety-five per cent. carbolic acid and after a minute's contact, neutralizing it with alcohol, is very successful, but a considerable layer of cells has been destroyed. Washing twice more a day with a bichloride or carbolic acid solution may

prove of much benefit. A bichloride compress renewed at intervals is of service.

In the more nearly acute cases washing with a three to five volume solution of hydrogen dioxide or a normal salt solution hot as may be borne will prove beneficial.

After having cleansed the ulcer, some protective dressing should be applied. This may be a few layers of sterile gauze with a little boric acid cerate, or some other, equally bland, applied to the ulcer so that the gauze will not tear the granulations when removed. In the syphilitic ulcers the application of a mercurial ointment of from two to ten per cent. strength will have the double effect of sterilizing the wound and introducing the drug where the virus is active. In some cases, especially where a speedy cure is demanded, rest in bed with the leg elevated is a very helpful measure.

In those ulcers which have persisted for years or perhaps only for months the best method of treatment is with the patient under a general anesthetic carefully curette the ulcer, removing all the diseased tissue and then cover with grafts according to the method of Thiersch; in my experience in ten days the grafts will be adherent and the ulcer healed. Care must be taken to protect the tender grafts else they will break down and an ulcer again appear.

Dr. George B. Hickok, of Roselle Park, N. J., writes:

The treatment of chronic ulcers of the leg will resolve itself into the treatment of the constitutional, general, and local causes of the ulcer. These different causes must be sought after whether syphilis, gout, rheumatism, kidney, or heart disease, tuberculosis, pregnancy, results of phlebitis, or injury.

Medical treatment in each case will depend upon the character of the disease. In case of syphilis, the patient should be treated with mercury, potassium iodide, salvarsan, or neosalvarsan; in case of rheumatism and gout, with colchicum, salicylic acid, alkalies, and with sulphur baths; in case of tuberculosis, with open air, good food, and tuberculin.

The treatment of ulcers of the leg, in addition to the constitutional treatment, is in a great measure mechanical, and depends upon means to avoid congestion and stasis of the blood in the veins of the leg.

Avoid constipation, keep the bowels regular with calomel, cascara, rhubarb, podophyllin, sodium sulphate (Glauber's salts) alternated with Rochelle salts. Glauber's salts are perhaps one of the best stimulants of the liver which we possess, and are an ingredient of the best natural mineral waters. Incidentally I have found that syrup of buckthorn is one of the best laxatives in cases of children. Regulate the heart and kidneys with digitalis, aconite, sweet spirit of nitre.

Wash the ulcer with warm water and carbolic soap, juniper tar soap, or pure white imported Castile soap. Poultice to remove any hard crusts which may be on the surface or edges of the ulcer.

As direct treatment of the ulcer, after washing, destroy proud flesh, exuberant granulations, with solid stick of silver nitrate; keep the edges of the

ulcer flat and depressed by burning with silver nitrate and bandaging, as no healing over of the ulcer will take place while the edges are elevated. Touch the bleeding points of the ulcer with the solid stick of silver nitrate, paint the entire surface of the ulcer with ten to thirty per cent. solution of silver nitrate. Stimulate the ulcer if sluggish by Bier's method, x ray, or radium emanations; scarification may also be resorted to; or long exposure to sun's rays with feet elevated.

After washing and stimulating applications, dry the surface of the ulcer thoroughly with charpie, lint, or absorbent cotton.

After drying, dust the surface of the ulcer with zinc oxide powder, with zinc stearate, with menthol (one of the best drying powders). If the ulcer is indolent, dress with balsam of Peru, ichthyol, and oakum which has tar as an ingredient.

After proper applications have been made to the ulcer, apply a bandage, two and a half inches wide, made from cheese cloth, commencing at the instep, bandage with figure of 8 bandage around the instep and ankle, leaving the heel bare, and using reverses in bandage until it reaches above the calf of the leg. The bandage will also serve to depress the elevated edges of the ulcer. In case of ulcer of the leg, always elevate the feet when sitting—the flow of venous blood will be assisted and pain in the back will be relieved. A rubber bandage may be used, but it is liable to create moisture and delay healing of the ulcer.

The American habit of elevating the feet when sitting has much to commend it in the comfort which is derived from relieving the strain on the muscles of the leg and the arch of the foot and the small of the back and preventing coldness and numbness of the feet. The Morris chair and the ordinary steamer chair are highly beneficial, both assisting in cure of the ulcers of the leg. Constant bathing of the legs with hot salt water when a bandage is not in use, will aid in cure of an ulcer of the leg.

After a bandage has been applied in case of an ulcer of the leg, an elastic stocking can be drawn over the bandage, but the same objection holds as in the case of the rubber bandage; it causes heat and moisture, especially in hot weather. If the cheesecloth bandage is kept in place by ordinary pins, worked in and out of the different layers of the bandage on each side of the leg, no other support will be necessary.

(To be continued.)

Therapeutical Notes.

Radical Treatment of Femoral Hernia.—Hermann, at a meeting of the Berlin Surgical Society (*Revue de chirurgie*, July, 1912) stated that the following operative procedure in femoral hernia had yielded satisfactory results in his hands in the last eight years: After removal of the hernial sac, Poupart's ligament is sutured to the periosteum of the horizontal ramus of the pubis. The pectineus muscle is then detached from the pectineal crest and fixed by a second series of sutures over the sutured portion of Poupart's ligament. Many of the patients operated upon were seen again, without re-

currence, from two to five years after the intervention.

Treatment of Pruritus Ani.—J. P. Lockhart Mummery, in the *Clinical Journal* for June 26, 1912, states that he believes in the use of powders in preference to ointments for pruritus ani, as dampness of the skin is one of the chief factors in producing the condition. Starch and boric acid in equal parts form a useful powder, which should always be reapplied after exertion or anything else likely to cause reappearance of the dampness. Phenol, one part in 60 or one in 40, daubed on with a sponge or with cotton wool is often very effectual. The following paint was found quite satisfactory by the author:

R Coaltar, ...3i;
Benzene, ...3ss;
Acetone, ...3ii.

M. Sig.: To be painted on with a brush, in one or two coats, and allowed to dry.

In very severe cases ointments may be useful to tide over a bad period. One made by rubbing as much chloroform as possible in hydrated wool fat (to be kept tightly corked) may, in general, be depended upon to alleviate irritation temporarily. Another useful ointment is the following:

R Bismuth subnitrate, ...3ii;
Cocaine, ...gr. x;
Calomel, ...gr. xv;
Petrolatum, ...3i.

M. ft. unguentum.

For injection into the bowel, alkaline lotions, e. g., a mixture of sodium bicarbonate, glycerin, and water, are most efficacious. They are to be used at bedtime.

In cases of pruritus rebellious to all nonoperative methods, Mummery advises the performance of Ball's operation. Flaps are dissected up on each side of the anus to the middle line, and the whole of the skin undercut so that the area of irritation is rendered anesthetic. The flaps are then sewn down again. Safety in this procedure depends upon ability to render and keep the parts aseptic for forty-eight hours. Only very exceptionally—one case in the author's experience—does irritation return after the intervention.

Good results have been obtained with the x rays in cases with much thickening of the skin, though the author himself confesses disappointment with this measure.

Treatment of Adenomata of the Rectum.—E. H. Terrell, at the fourteenth annual meeting of the American Proctological Society, June 3 and 4, 1912, referred to some simple medicinal measures which he had found of value in a case of this kind. The patient was a man of forty-two years, suffering from frequent stools containing mucus and some blood, together with much tenesmus and considerable abdominal pain. Numerous small tumors were found scattered in the rectum and sigmoid; microscopical examination of these showed them to be adenomata. The bowel was intensely inflamed and contained many ulcers. Under irrigations with boric acid and the administration by mouth of castor oil and aromatic syrup of rhubarb in equal parts, almost immediate improvement took place. The ulcers gradually disappeared, and though the adenomata were of course still present—reduced in

size—the patient was symptomatically cured. The chances of subsequent malignant transformation of the growths were also reduced through the relief of inflammation.

Treatment of Psoriasis.—Albert Bernheim, in *Monthly Cyclopaedia and Medical Bulletin* for June, 1912, describes therapeutic measures employed by him with success in eleven cases of widespread psoriasis. After placing the patient in a warm bath, to which, if the skin is tender and irritated, chamomile or bran and washing soda are added, the skin is rubbed gently once or twice with soft soap and washed off, the scales removed and a washing then given with a one to 1,000 solution of mercury bichloride. The skin is next well tarred with a preparation of coaltar and beech oils in dilute alcohol, and the patient kept in the bath from twenty to thirty minutes longer. After this the tar is washed off and the affected parts are treated with the following paste:

℞ Sulphuris præcipitati, ... 4 grammes;
 Acidi salicylici, ...
 Zinci oxidi, ... } āā 1 gramme;
 Amyli, ... }
 Petrolati, ... 25 grammes.

M. Fiat pasta. Sig.: Salicyl sulphur paste.

Talcum powder is then dusted thickly over the parts. Forty-eight hours later, the following ointment is used, followed by dusting with talcum powder:

℞ Pyrogallolis, ... 3 grammes;
 Adipis lanæ hydrosi, ... 30 grammes.

M. Fiat unguentum.

After another two days' pause a 25 per cent. ointment of chrysarobin in hydrated wool fat is similarly applied. It may be necessary, by reason of the local irritation induced, not to use this ointment over all the affected parts at one time, but to cover them gradually.

In addition to the local treatment, two kinds of pills are prescribed, to be continued for some time:

℞ Phenolis, ... 10 grammes;
 Extracti et pulveris glycyrrhizæ, ... q. s.

Fiant pilulæ No. 100.

Sig.: Three to ten pills daily after meals.

And,

℞ Arseni trioxidi, ... 0.5 gramme;
 Pulveris piperis, ... 6.0 grammes;
 Acaciæ, ... }
 Altheæ, ... } āā q. s
 Aquæ destillatæ, }

Fiant pilulæ No. 100.

Sig.: Three to ten pills daily after meals.

To these measures should be added plenty of fresh air and rest. The diet should be bland; the use of meat and alcohol should be interdicted, at least for a time.

Pituitary Extract in Obstetrics.—Liepmann, in *Therapeutische Monatshefte* for August, 1912, states that where the uterine contractions become weak toward the termination of labor, pituitary extract has given excellent results in his hands. Thus in a case of twin pregnancy in which the pains had begun forty-eight hours before and finally completely subsided for a period of two hours, an injection of the extract caused them to reappear strongly within five minutes. Where the drug was employed in the first stage of labor, however, the results were much less constant.

In cases with malposition of the fetus, the powerful contractions induced by the extract tend to correct deviations of its longitudinal axis from the normal, thus facilitating labor and obviating the use of forceps under unfavorable circumstances. While the drug proved useless in induced abortion, the results in hemorrhage following parturition were very gratifying. In two cases of Cæsarean section, a preliminary injection of pituitary extract resulted in reduction of the bleeding at operation to an insignificant amount.

Treatment of Typhoid Fever.—Hirtz, in *Quinzaine thérapeutique* for August 10, 1912, states that in a not inconsiderable number of typhoid cases it is inadvisable to try to secure a lowering of the temperature by strenuous administration of cold baths or packs. Often the purposes of the Brand method are best attained where strict adherence to its formal regulations is not attempted. Thus, in typhoid fever, especially early in its course, insomnia is frequently present. Although a certain proportion of patients can secure enough sleep in the twenty-four hours both by day and night, notwithstanding the interruptions for bathing, other patients can sleep only at night, some in the earlier night hours, the remainder principally toward morning, and in these regular bathing at night is likely to do harm. While giving the baths in the daytime, Hirtz therefore omits all night baths when the patient is asleep. Effects on the temperature are thus obtained which the classic procedure fails to procure. Often in the day or two following a night in which one or two baths have been omitted, the temperature curve is found to descent of a degree or more, which shows that a definite, though sometimes but temporary, favorable influence has been exerted on the febrile process itself. Hirtz also modifies the Brand treatment by varying the temperature of the baths given according to the age and previous physical condition of the patient, as well as the apparent severity of the typhoid infection.

Treatment of Asthma.—Maragliano, in *Union médicale du Nord-est* for October 30, 1912, is credited with the following combination for use in bronchial asthma:

℞ Bromoformi, ... 5ss (2 grammes);
 Alcoholis, ... 5iiss (10 grammes);
 Aquæ amygdalæ amaræ, ... 5v (20 grammes);
 Extracti opii, ... gr. ½ (0.03 gramme);
 Syrupi ipecacuanhæ, ... 5viiss (30 grammes);
 Aquæ, ... 5v (150 grammes).

Fiat mistura secundum artem.

Sig.: One tablespoonful as required.

Treatment of Leuchemia.—Királyfi, in *Lyon médical* for September 8, 1912, is credited with statements emphasizing the value of benzol in the treatment of leuchemia. In collaboration with Koranyi he employed this agent, which, as is well known, is toxic to leucocytes, in a number of cases of the disease. In nearly all instances favorable results were obtained, the number of white corpuscles being reduced to normal in three weeks. The erythrocytic count remained practically unchanged. The benzol was given, mixed with an equal quantity of oil, in capsules. Some degree of digestive disturbance was produced, but no other untoward effects appeared.

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ANTINARCOTIC LEGISLATION.

One bill regulating the traffic in opium and coca and their derivatives has been introduced into Congress and two have been introduced into the New York Legislature this year. The Harrison bill, which is the successor of the Cullom and the Harrison bills introduced at previous sessions of Congress, is of particular interest to our friends in that it includes in the category of "retailers" all registered physicians, dentists, and veterinarians. Under this bill physicians would be required to pay an annual license fee of one dollar to the United States Bureau of Internal Revenue and keep a record of all opium, coca, and their derivatives dispensed or administered by them. It would, moreover, be illegal for the physician to send any of these drugs from one State to a patient in another State, though registered and licensed pharmacists may so send the product of a physician's prescription.

One of the laws introduced into the legislature of the State of New York, the Kerrigan bill, is so absurd and impracticable in its requirements that it need not be discussed, for it is most unlikely to become a law. Under this measure physicians would be required to write all their prescriptions for the drugs in question on official blanks, to limit the quantity prescribed to a three weeks' supply, and not to renew this supply except after consultation with another physician.

Another measure, however, introduced by Mr. Walker on January 30th, has the approval of the district attorney of the city of New York and seems likely to become a law. This bill provides an amendment to the penal code in relation to the sale or possession of cocaine and eucaïne. The provisions of the amendment are quite elaborate, the principal features of interest to the physician being the following: The druggist is forbidden to dispense cocaine or eucaïne except in solution or ointment of not more than four per cent. strength. If a prescription calls for not more than one grain of cocaine in solution or two grains in ointment form he may renew it, but not otherwise. He must also furnish to the patient a certificate giving the amount of cocaine, the name and address of the physician, and the name of the seller. Wholesale dealers are required to keep a record of sales, which may be made only to registered pharmacists, physicians, dentists, and veterinarians, and the purchaser is required to sign the record of purchase in each case. The dispensing or prescribing of these drugs in any form other than solution or ointment stronger than four per cent., constitutes a felony, and the mere possession of the drugs by unlicensed parties except when accompanied by the certificate of sale constitutes a misdemeanor. It will be unlawful for any physician to have in his possession more than 120 grains of either of these drugs. Each public hospital may have on hand as much as five ounces of the drug at one time, but this must be in the possession of, and recorded by one regular employee specifically designated by the board of trustees or manager.

Doubtless there are black sheep in the profession, but physicians are justified in resenting legislation of this kind, which practically classes them with all kinds of irresponsible, furtive dealers in narcotics, who, it is more than likely, will not find their nefarious trade greatly interfered with. On the other hand, specialists, rhinologists in particular, will be much hampered in their routine work which involves the regular use of cocaine, in such a manner, however, as not possibly to create a habit.

THYROID GLAND IN BRIGHT'S DISEASE.

The use of thyroid gland in the treatment of chronic nephritis was recently advocated by J. F. Percy (see our issue for November 23, 1912, page 1093) after he had used this agent in thirty-five cases. He had found that thyroid gland in full doses increased diuresis and caused the urinary solids to return to normal and the albumin and casts to disappear in from four to six weeks. The blood pressure, moreover, was reduced and the local and

general symptoms of Bright's disease were caused to vanish. Such sweeping conclusions their author could hardly expect to pass unchallenged, and, indeed, he is taken to task by A. Gouget (*Presse médicale*, December 28, 1912) on the plea that but two cases are described; that the identity of one of these as a case of Bright's disease is not demonstrated, and that the result obtained could hardly be credited to the thyroid gland administered. Formulated as above, without reserve, Percy's conclusions are deemed too absolute.

The interesting feature in this controversy is the total absence in either of the articles, Percy's or Gouget's, of any reference to the possible mode of action of thyroid in bringing about the results recorded. Had either of these authors familiarized himself with established facts concerning this feature of the problem, so sound a foundation would have been afforded for the results obtained, that their real value would scarcely have been questioned. We refer to the antitoxic rôle of the thyroid gland, already emphasized in these columns (see our issue for November 11, 1911, p. 961), which clearly accounts for Percy's successful results.

The use of thyroid gland in Bright's disease is not new. It was recommended by Heinsheimer in 1895, to promote diuresis in this disease, also by Dieballa and von Illyes, in 1897, who had used it in three cases in which it caused general improvement, diminution of the edema, and normal urination, notwithstanding the continuation of ordinary diet. That these important results should have received no attention is not to be wondered at when the ignorant cynicism existing at the time concerning everything pertaining to the ductless glands is recalled. In Percy's thirty-five cases—provided their detailed description will stand close scrutiny—we have, therefore, the resumption of a line of medication which should not be ignored. To enhance, by means of thyroid gland, the catabolism of toxic wastes and other poisons capable of perpetuating the renal irritation to which chronic nephritis is due, not only appeals to reason, but is sustained by a multitude of experimental and clinical facts.

Our own experience has taught us that the thyroid treatment should not preclude the use of iron—preferably Basham's mixture—which facilitates the formation of hemoglobin and counteracts the anemia.

AN EXHIBIT ON MENTAL HYGIENE.

Recently 24,000 people visited an exhibit on mental hygiene at the College of the City of New York and attended a series of lectures on mental disorders and their prevention, held under the auspices of the Mental Hygiene Committee of the New York

State Charities' Aid Association; the exhibit was prepared and loaned by the National Committee for Mental Hygiene. The object of the exhibit and conference was to give to the public information regarding the prevalence of insanity and mental defectiveness, the causes and nature of these conditions, some possible means of prevention, and modern methods of treatment. Physicians were in attendance to explain the exhibit and answer inquiries, and questions were invited at each of the public meetings.

It was apparent from the questions asked that one reason for the unexpected popular interest was a personal one. Insanity and feeble mindedness are so prevalent that there are few families which are not touched by the problem; and it is not surprising that a great many of those who attended the exhibit and conference were led by the fact that they had relatives or friends suffering from some form of mental disorder. A striking evidence of this is the fact that the few clinics for mental diseases in this city were overcrowded during the latter days of the week by patients and others seeking advice.

It is believed that, next in importance to this personal reason for the large attendance and the unusual interest manifested, is the fact that, so far as known, this was the first opportunity afforded the public to become informed about those suffering from disorders of the mind. The complicated legal requirements for their commitment, the need for care in special institutions, which are often remote from the centres of population, the apparently mysterious nature of their affliction, and the difficulty of associating it with familiar facts regarding health and illness—all tend to set disorders of the mind apart from other kinds of illness in the public estimation. This reflects itself in the remarkable scarcity of the literature which is available to the public regarding mental diseases. The only books are those written for the physician and the specialist. The statement was frequently heard at the mental hygiene exhibit that the information presented was entirely unfamiliar and that it upset many beliefs which had been held previously.

This general lack of information regarding the nature and causes of mental disease is responsible, as much as anything else, for the slow progress which has been made in the better care of the insane. It is a fact that one third of all the patients who are admitted to institutions for the insane have had their disease at least a year. If we come to inquire particularly into the cause of the disastrous delay in obtaining treatment for mental cases, it is apparent that the principal causes are distrust of institutions for the insane and lack of information regarding the means to be taken to secure treat-

ment. The complicated legal requirements for commitment are responsible, too, for a vast amount of delay in the admission of patients; another reason is the unfortunate association between insanity and crime. It is a fact that, in a certain number of cases, disorders of the mind lead those afflicted to commit acts which, judged by the standards which we apply to the acts of normal persons, are breaches of the peace or of social conventions, but it is not generally appreciated how small a proportion of all insane people are guilty at any time during the course of their mental disease of any crime or misdemeanor. In the mental hygiene exhibit and conference special emphasis was laid upon this fact, and many persons who attended announced that they had gained a new conception of insanity and a kindlier attitude toward the insane. Even partial attainment of this end must be counted as a very great success, and if the mental hygiene exhibit accomplished no other result there can be no doubt that it would have been amply justified by this one. The lot of the insane has been greatly ameliorated and now, in every enlightened State, we do not tolerate conditions which were not even criticised a generation ago. Much remains to be done, however, and, aside from the great problem of prevention, there seems to be no more urgent need at the present time than the provision of hospitals to which acute cases of mental disease can be admitted with as little formality as to general hospitals and treated on the same general principles which are employed in the care of other classes of the sick. This point was very strongly emphasized in the exhibit. Plans and pictures of the Henry Phipps Psychiatric Clinic at Baltimore and the new Psychopathic Hospital at Boston had a prominent place, and it was emphasized that such institutions break down the last barriers between the treatment of the insane and that of other sick persons.

COCAINE HABITUÉS IN PARIS.

Marcel Briand and Vinchon presented at a recent meeting of the Société clinique de médecine mentale de Paris four "cocainomaniacs," and *Semaine médicale* for January 8, 1913, devotes much space to the discussion of the rapid growth of the cocaine habit in the French metropolis. The article begins with a description of the symptoms of the habit, among which is mentioned the little known perforation of the nasal septum which is becoming recognized as characteristic. It appears that some fifty per cent. of the women of the street snuff cocaine and they acquire the manners of the women here in their easy familiarity with the dispensers of the drug, for which they have a slang name *coco*, just as it is commonly known in the United States as "coke." Most of them begin by using the drug secretly, but soon become reckless and snuff it in

more or less public places without shame. The ease with which the drug is taken makes victims much more speedily than alcohol, morphine, or the once popular ether, but there are many victims of various combinations of the narcotics. Cocaine takes such a hold on women that they sell their furniture, their furs, and jewels at ridiculously low prices to obtain it. The trade has given rise in Paris to the *chasseur*, who corresponds to the New York *lobby goer*, and acts as messenger between the law-breaking pharmacist or other merchant and the victim. The Apache or gun man and the sexual invert are also cocainists as a rule. France has severe laws against the sale of narcotic drugs, but so far their effect has been, in Paris as well as nearer home, simply to raise the price, often at late hours of the night to four dollars a drachm.

REFORMING CRIMINALS BY OPERATION.

The reform of criminals by an operation on the skull, which is so attractive an idea *a priori*, has not worked out in practice. There does not seem to be any ascertainable relation between physical constitution and moral character, now that the theories of that most credulous of observers, Lombroso, have been generally discarded. Admitting that an operation done in early childhood might have a favorable influence on the future moral life of the patient, there is a factor in crime which has perhaps not received the attention it deserves. We refer to habit, which is a matter not only of a nerve centre, but of every fibre of nerve and muscle down to the finger tips. The successful criminal, from pickpocket to safe cracker, is an individual with an education resembling that of the musician or artist in that a technic has been carefully cultivated through years of assiduous practice. We could believe in an adult criminal reformed by surgery alone only if a trephining operation was supplemented by an amputation of his adroit fingers. The latter would stray toward crime by reflex action alone despite the weak inhibitory influence of a new surgical brain centre, which would obviously be just beginning its moral education.

THE TUBERCULOSIS QUESTION FROM A FRENCH REPORT.

The board of health of the city of Paris has published its report on the tuberculosis question (and also on the cancer question) for the year 1911: it contains very interesting material that should be studied by every member of the boards of health of the large cities of our country.

The Paris board of health has made observations on the tuberculosis question for eighteen years, during which time an attempt has been made to get at the root of the evil, that is, the elimination of such rooms and houses as from their position could be taken as breeding places of the disease. While the first twelve years did not show any improvements, as during this time the work was very much handicapped, there appeared in 1909 a change for the better. In January, 1905, 5,263 houses were designated as needing improvement, but of this number

1,090 were boarding houses which could not under the law be attacked, and of the rest, fifty have been torn down. Others have been improved, so that at present only about one third remain to be changed. The great disadvantage of the building laws of Paris is that for a dwelling house thirty metres high, a court of only six metres need be provided, and in a street of twelve metres width, houses may be built eighteen metres high. Thus, even comfortable apartment houses have a lack of court space. This drawback, by the way, is to be found not only in Paris, but also in London and Berlin, in which latter capital a room with very little air and light, generally used as a dining room, has received the name of *Berliner Zimmer*, as it is peculiar to houses found in the German capital. Our readers will be astonished at the statement coming from a Parisian source, that the French capital has the least space given for public places, gardens, and playgrounds of all the capitals of the world.

The report accepts the English statement, that there is one death from tuberculosis to about five patients. The number of deaths for 1911 is given as 9,371, seventy-eight less than in 1910, 343 less than in 1909, and 891 less than in 1908.

Obituary.

ORVILLE HORWITZ, M. D.,
of Philadelphia.

Dr. Orville Horwitz, the noted genitourinary surgeon, died at Philadelphia on January 28th, at the early age of fifty-four years. He was born in Philadelphia of distinguished parentage, his father, the late Dr. P. J. Horwitz, having been a medical director in the United States Navy. He received the degree of Bachelor of Science in 1881 at the University of Pennsylvania and that of M. D. from Jefferson Medical College in 1883. He rose rapidly in eminence in his chosen field and was for twenty-six years professor of genitourinary surgery at the latter institution, a position which declining health caused him to resign recently when, as a mark of appreciation, he was made professor emeritus. He was also consulting surgeon to the Jefferson Hospital, the Philadelphia General Hospital, the State Hospital for the Insane, St. Agnes Hospital, and the Jewish Hospital. Doctor Horwitz was unmarried.

JAMES P. TUTTLE, M. D.,
of New York.

Dr. James P. Tuttle died from the effects of prolonged diabetes at his residence, 42 West Fiftieth Street, New York, on January 31st, in his fifty-sixth year. He graduated in medicine at the University of Pennsylvania in 1881 and began practice in New York almost at once. Some years later he became professor of diseases of the rectum as well as surgeon at the New York Polyclinic School and Hospital, and acquired a remarkable reputation for his operations, particularly for the relief and cure of malignant disease. Doctor Tuttle was also surgeon to the New York Home for Aged and Infirm and St. Bartholomew's Clinic, consulting surgeon

to the Manhattan State Hospital, and a frequent contributor to the *NEW YORK MEDICAL JOURNAL*. He is survived by a widow.

Medical Law.

X. THE PHYSICIAN AS WITNESS.

Expert testimony and an expert witness are defined by the Supreme Court of Missouri, in the case of *McAnany vs. Henrici*, 141 Southwestern Reports 633, as follows:

Expert testimony is the opinion of a witness possessing peculiar knowledge, wisdom, skill, or information regarding a subject matter under consideration, acquired by study, investigation, observation, practice, or experience, and not likely to be possessed by the ordinary layman or an inexperienced person, and consequently who is incapable of understanding the subject under consideration, without aid of the opinion of some person who possesses such knowledge, wisdom, skill, practice, or experience; and a person who is competent to give expert testimony is denominated as "expert witness."

This definition was formulated and applied in a case involving testimony in no way relating to medical matters, and it was determined by the court that the character of testimony introduced as "expert testimony" did not measure up to this standard, as it related to a matter of a character that the jury was capable of understanding. The definition is, however, intended to include "expert testimony" of whatever character.

XI. PRIVILEGED COMMUNICATIONS.

In the case of *Steketee vs. Newkirk*, 138 Northwestern Reports 1034, a physician, upon the trial of the case, had been permitted to testify to the general health and mental condition of his deceased patient over the objection that such information was privileged. Mr. Justice Kuhn, of the Supreme Court of Michigan, in reviewing this ruling said:

He was not examined as to any information gained from Mrs. Newkirk, or as to any communication with her. It does not appear that what he stated on the stand was information which "was necessary to enable him to prescribe for her." This is necessary, in order to bring it within the prohibition of section 10,181, Compiled Laws 1897, which provides: "No person duly authorized to practise physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient, in his professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon." We think the testimony was properly admitted.

This decision is in accord with previous Michigan decisions on the subject, but is at variance with the decisions of a majority of the States. This decision represents a strict construction which regards only such information privileged as is imparted and received solely for the purpose of aiding in the treatment of the particular condition of the patient. A broader interpretation of the statute protects not only verbal communications and statements made for the purpose of enlightening the physician as to the conditions of which he should know, but also includes all information necessarily acquired by him through observation or otherwise which he necessarily acquired in treating the patient. Under this broader interpretation, if a patient in submitting an injured limb for surgical treatment discloses the

marks of a hidden disease, the knowledge thus acquired by the doctor is regarded as privileged, not only so far as to the condition he is employed to treat, but as to all other conditions necessarily coming to his notice in rendering the professional services sought. This latter interpretation of the statutes is the one more generally applied by the courts. An interesting discussion of the two doctrines and their application in various cases will be found in *Law in its Relation to Physicians*, Ed. 1900, p. 497, Ed. 1903, p. 505.

News Items.

The Edmonton Medical Society, of Edmonton, Alberta, Canada, has established a library and reading room and would be glad to receive medical literature of all kinds. Heber C. Jamieson, M. B., 501 Tegler Block, Edmonton, librarian.

Audubon Medical Society.—At the annual meeting of this society, held in New York on the evening of January 31st, the following officers were elected: Dr. Theodore K. Tuthill, president; Dr. R. Emmett Walsh, first vice-president; Dr. Goodrich T. Smith, second vice-president; Dr. Ten Eyck Elmendorf, treasurer; Dr. Sidney J. Furst, secretary.

Personal.—Dr. Arthur S. Unger, of New York, has been appointed attending radiologist to St. Joseph's Hospital, Far Rockaway, L. I.

Dr. S. R. Klein will give a public lecture on the prevention of tuberculosis, at Public School 87, Borough of Queens, on February 11th, illustrated by stereopticon views, explaining the use of tuberculins, antitoxines, vaccines, etc.

Dr. F. C. Warnshuls, of Grand Rapids, Mich., was recently elected secretary of the Michigan State Medical Society, to succeed Dr. W. H. Haughey, of Battle Creek, and Dr. D. Emmett Welsh, also of Grand Rapids, was elected treasurer.

The Jesup Lectures.—This series of eight lectures is being given in the Lecture Hall of the Museum of Natural History, by Thomas H. Morgan, Ph. D., professor of experimental zoology at Columbia University, his subject being Heredity and Sex. These lectures, which are open to the public, are given on Wednesday evenings at 8:15 o'clock, from February 5th to March 26th. The subject of the first lecture was the Evolution of Sex, and next week's talk will be on the Mechanism of Sex Determination.

Research Work in Diabetes Mellitus.—Dr. William E. Fitch, 355 West 145th Street, New York, is undertaking an exhaustive research into the pathology, etiology, and dietotherapy of diabetes mellitus, and is anxious to hear from every physician in the United States who has a case under treatment, or who has had any experience in the treatment of this malady. Von Noorden says: "The best treatment for the diabetic is the food containing the greatest amount of starch which the patient can bear without harm." If any physician who reads this has similar or contrary experience, and will take the trouble to write Doctor Fitch, the latter would esteem it a special privilege to hear from him if only to the extent of a postal card.

Society of Sanitary and Moral Prophylaxis.—A stated meeting of this society will be held at the New York Academy of Medicine on Thursday evening, February 13th, at 8:30 o'clock. The general topic for discussion will be the Matter and Methods of Sex Education Other than Instruction in Schools. Papers will be read as follows: Sex Instruction to Boys and Men, by Dr. Eugene La F. Swan; Sex Instruction to Young Women, by Miss Nellie W. Smith; Sex Instruction to Children, by Miss Laura B. Garrett; Sex Instruction for Parents, by Mrs. Mabel M. Irwin. A general discussion will follow among those who will participate being Dr. Ira S. Wile, Dr. Thomas D. Wood, Dr. Rosalie Slaughter Morton, Dr. Mary Sutton Macy, and Miss Harriet D. McDaniel. A full attendance of members and all others who are interested in the subject under discussion is desired.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

December 5, 1912.

Urine Intoxication in Intraperitoneal Rupture of the Bladder.—Oehlecker relates two cases of traumatic and spontaneous intraperitoneal rupture of the bladder, and discusses the various diagnostic points. Particular significance is attached to the cryoscopic examination of the blood, which gives an index to the amount of resorption of the solid contents of the urine from the abdominal cavity, that have found their way into the blood. When a sterile bladder ruptures, the subsequent bedside picture is governed by the uremic components of the blood and not by the infectious components. In the former case the dangerous uremic symptoms disappear promptly after the operative removal of the urine from the free abdominal cavity and the repair of the tear in the bladder. Often the apparently hopeless cases can be saved by operation, and the latter is to be deferred only when the uremic symptoms can be assigned to a cause other than that of the urine in the free abdominal cavity.

Primary Diffuse Sarcoma in the Knee Capsule Simulating Inflammatory Fatty Hyperplasia.—Blumenthal describes a case of primary sarcoma in the kneejoint in a woman, twenty-nine years old, which clinically had marked resemblance to Hoffa's fatty hyperplasia. From a fungus it was differentiated by slight pain and slight functional disturbance. It is now two and a half years after simple capsular extirpation of what proved under microscopical examination to be a large celled sarcoma, and no recurrence has yet taken place.

Thiersch's Transplantation for Defect in the Urethra.—Muller obtained satisfactory results in one case of traumatic and four cases of gonorrheal strictures by extirpation, covering the defect by a Thiersch skin flap, and the formation of a new urethra by suturing the new edges over a thick Nelaton's catheter. In two cases a small fistula was formed; the lasting effects of this method of treating strictures are not discussed.

Adenom in Sexual Irritation.—Frank says that adenom, a new dibromester, has an excellent sedative action in all irritations of the genitourinary tract and has also been found valuable as an anaphrodisiac. The drug is tasteless and odorless, and is administered in three gramme doses one and a half hour before retiring.

Röntgen Therapy in Gynecology.—Wetterer believes that the rapid sterilization of women by intensive illumination with Röntgen rays is hazardous, not only because of the rapid and strong interruption, but also because of the serious direct effects of the rays on the alimentary tract. The symptoms of these are nausea, vomiting, bloody or mucous diarrhea, and colicky pains. The French authors, Regaud, Nogier, and Lacassagne have been able to show experimentally the harmful effects of the Röntgen rays on the intestines of dogs, which consist chiefly in the disappearance of the villi and the glands of Lieberkühn. When the ovaries are to be rayed they should first be accurately located and treated from one definite point.

December 12, 1912.

Treatment of the Fever of Tuberculosis with Hydropyrin Grifa.—W. Nieveling found this preparation, which is a watery solution of lithium salts of acetylsalicylic acid substituted for the sodium salicylate in the Hoedemaker pills, reduced the fever in tuberculous patients gradually within three weeks without harmful side actions. To obtain the desired effects, about 250 pills are necessary, given in doses of from three to four pills three times a day, one to one and a half hour after meals.

Simultaneous Occurrence of Ulcus rotundum and Myoma of Stomach.—K. Ungar reports a case of a woman, forty-nine years old, who for the past fifteen years had periodical attacks of gastric vomiting and pain and for the past five years showed a slowly growing tumor in the gastric region. At operation there was found on the larger curvature of the stomach, near the fundus, a so called outer myoma the size of a hen's egg, which ulcerated superficially on its mucous membrane surface. A corresponding round, funnel shaped ulcer with hard edges was discovered on the small curvature. Excision of both diseased portions brought about recovery. The author is of the opinion that the myoma developed upon a chronic ulcer.

Noviform in Otorrhinology.—Dornheim uses noviform as a substitute for iodoform. It is excellent in every respect, odorless, deodorizing, styptic, desiccating, and antisialogogue. It has not the slightest irritating or caustic action.

December 19, 1912.

Late Empyema of Mastoid.—C. Luders describes four cases in young adults in whom developed late empyemata of the mastoid process after infection of the middle ear. He urges, therefore, that every postoperative case of middle ear disease be kept under the physician's control for a long time after operation, and warns these patients to seek the doctor's advice whenever pain is experienced in or behind the ear.

Absorption of Sodium Salicylate in Different Methods of Application.—E. Levin, comparing the graphic curves of his experiments, found that the rapidity of absorption of sodium salicylate when given subcutaneously is about the same as in other methods of administration, but its maximum concentration in the blood does not attain to one half of that when it is given intramuscularly. Sodium salicylate disappears most rapidly from the blood when given subcutaneously; in ten hours there are no traces of it left in the blood, while if given *per os*, tests show it to be present in the blood after twenty-two hours.

Intramuscular Use of Fulmargin.—Engelen says that fulmargin, a colloidal silver obtained by the electric dissociation, has the following advantages over the chemically prepared colloidal silver preparations: It is absolutely pure, harmless, may be kept for a long time, and can be given intramuscularly. Its increased catalytic action, due to the greater degree of dispersion, brings about a stronger destructive process of oxidation of the bacterial toxins.

Uzara, a New Antidiarrhea Remedy.—A. Eisenheimer administers uzara in case of simple in-

testinal catarrh, infectious diseases, such as typhoid and dysentery and in toxic intestinal disturbances. The new drug is a stimulant of the inhibitory fibres of the splanchnic nerves. It increases the tonus of the vessels similarly to digitalis. It is given chiefly in two per cent. solution as liquor uzara, every two hours, from twenty to thirty drops, or two tablets every hour. Children receive suppositories every three or four hours.

December 26, 1912.

Arsenic Idiosyncrasy.—C. Staebli reports the case of two patients in whom the subcutaneous injection of 0.05 sodium cacodylate produced large inflammatory swellings, marked rise of temperature, general feeling of discomfort, headaches, diffuse pains in extremities, loss of appetite, and in one case dyspnea.

Diagnostic Significance of Döhle's Leucocytic Enclosures.—A. Belák is of the opinion that the leucocytic enclosures described by Döhle in scarlet fever cases cannot be considered as pathognomonic, since they are found in many other conditions. Their absence is of diagnostic significance because they are found in the early stages of all scarlet fevers; a negative result therefore excludes scarlet fever, and the early diagnosis of the disease may be made by their presence.

Melubrin in Acute Articular Rheumatism.—Saar says that this new antirheumatic acts promptly upon the joint swellings, pain, and fever in acute cases of articular rheumatism in the majority of cases. It has no appreciable influence on the heart or kidneys and does not affect the stomach. Cases of acute articular rheumatism and rheumatic skin conditions refractory to the salicylates are greatly aided by this preparation.

ZENTRALBLATT FÜR CHIRURGIE.

January 11, 1913.

Pyelotomy with Incision through the Anterior Wall of the Pelvis of the Kidney.—Von Illyes finds that the anterior wall of the pelvis of the kidney can be approached much more easily than the posterior, that after a suitable dissection the incision can be made more readily in it, and that the wound can be sutured with less trouble after the calculus has been removed. He finds it unnecessary to dissect out the entire kidney to do this, but only to free its lower part and the upper part of the ureter, so as to lay bare the pelvis and the bloodvessels over it. Then, while one assistant draws the abdominal wall forward and a second presses the lower end of the kidney outward, the anterior wall of the pelvis of the kidney is easily reached. He performs posterior pyelotomy only when the entire pelvis is small and is covered with bloodvessels.

ZENTRALBLATT FÜR GYNAKOLOGIE.

December 14, 1912.

Puerperal Bacteriemia Due to Colon Bacillus.—Köhler reports two such cases, one resulting fatally. As a rule the prognosis is more favorable than in a streptococcal infection. The lengthy duration is also characteristic, as the bacteriemia lasted a couple of months in both cases.

December 21, 1912.

The Possibility of Pregnancy after the Classical Cæsarean Section.—Von Hoeven calls atten-

tion to the fact that the majority of women become sterile after the usual abdominal Cæsarean section. This is probably due to the formation of adhesions between the uterus and the surrounding structures, also between the tubes and the ovaries, the former becoming enveloped. For these reasons the author suggests that, possibly in the future, the transperitoneal cervical Cæsarean section may supplant the older method.

December 28, 1912.

Pituitrin in Labor.—Gussew reports in general his results obtained in forty-six cases. The solution used came in one c. c. ampoules containing 0.2 c. c. of the twenty per cent. extract of the posterior lobe of the hypophysis. The amount injected was 0.75 c. c. except in three cases when one c. c. was used; the smaller amount seemed to work more satisfactorily. The labor pains began some ten minutes after the injection. The author believes that pituitrin is a very valuable and reliable agent particularly during the act of labor and afterward. Chloroform narcosis, however, and the subcutaneous injection of morphine will interfere with the action of the drug.

ZENTRALBLATT FÜR INNERE MEDIZIN.

January 4, 1913.

Diastase Content of Feces in Fermentative Dyspepsia.—J. Arnold studied this question in six patients and found a diminution in the diastase content only in one instance. He believes it unwarranted to assume, with Strassburger, that diminished diastase production is the cause of fermentative dyspepsia. The results would tend rather to confirm the findings of Lohrlich, which indicated that the primary disturbance in these cases is a partial loss in the power of the intestine to digest the cellulose covering of the starches. Little promise of benefit from the administration of plant diastase in these patients is afforded; dietetic measures constitute, as heretofore, the most important part of the treatment.

BEITRÄGE FÜR AUGENHEILKUNDE

December, 1912.

Examination of the Eye with the Nernst Light.—Jean Staehl states that by oblique illumination with the Nernst light, the observer using at the same time a binocular loupe, extremely minute lesions on the cornea and iris can be recognized, which would escape observation if the examination were made in the ordinary way. One point of interest is that during the four and a half years that he has been using the Nernst light he has been able to find traces of the fetal pupillary membrane very much more often than formerly; he says that they seem to be present in more than sixty per cent. of the cases he has examined.

LYON MÉDICAL

January 5, 1913.

Typhoid Fever Prophylaxis.—H. Rondet is convinced, from prolonged epidemiological studies in rural districts, that the importance of bacillus "carriers" as a factor in the transmission of typhoid fever must constantly increase at the expense of that of transmission by water. Soon no cases except those occurring in widespread epidemics will be

attributed to water transmission. The author lays stress on washing the hands after defecation as a prophylactic measure and recommends that the importance of this precaution be thoroughly impressed upon school children, hotel employees, and dairy-men.

PRESSE MÉDICALE.

January 4, 1913.

Treatment of Ozena.—G. Mahu, discussing this subject at length, states his belief that paraffin injections do not yield benefit merely by diminishing the excessive air space in the nasal cavities, but by compressing the glands of the mucosa and thus preventing them from secreting the purulent and fetid fluid generally formed. Far from being an illogical combination, paraffin injections and forced aeration or respiratory reeducation are complementary measures, which when instituted simultaneously, give very encouraging results. After describing the technic of nasal lavage, which is to be followed by spraying with an antiseptic solution or lactic ferments, Mahu considers the subject of paraffin injections. These should be practised in all cases but those in which atrophy of the mucosa has reached its last stages, but should be limited to the inferior turbinates and the floor of the nasal cavities, as injections into the septum have been the cause of various unpleasant results. Any sinusitis or general infection present must be overcome before paraffin injections are undertaken. The chief points emphasized in the technic of the injections are: 1. One should avoid injecting into the head of the inferior turbinate at first, but begin farther back; 2, the injection should be controlled by visual observation of the mucosa, and stopped when the latter is seen to grow pale at any point; 3, the amounts injected should not exceed 0.5 c. c. and frequent treatments be given; and, 4, the paraffin used should be friable and the instrument heated before its introduction. Massage of the mucosæ with dry compressed air and respiratory exercises carried out by the patient himself, with the nostrils partially occluded by Foy's clamp, greatly improve the circulation in the diseased membranes, promote elimination of the stagnating secretions, and ameliorate the patient's general condition.

January 8, 1913.

Colloidal Silver in Pediatric Practice.—A. Netter states that he employs this agent with good results in all varieties of infection. In lobar and bronchopneumonia a fifteen per cent. ointment is efficacious, provided the skin at the seat of application is previously well rubbed with a brush. In the second condition mentioned subcutaneous injections of a relatively dilute preparation, e. g., 0.25 per cent. collargol, are often administered, while in the serious cases one, two, or even five per cent. preparations are given intravenously. Pneumonia could sometimes be arrested on the third day by this measure; in infectious or rheumatic endocarditis, in pyemia, and in grave diphtheria excellent results were also obtained. In infectious conditions with intestinal localization, the silver is given either by mouth, with coffee syrup or a flavored elixir, in daily doses of 0.2 to 0.4 gramme, or in enemas, from 0.4 to one gramme. Dysentery and paratyphoid fever

sometimes yield rapidly to the enemata, while in typhoid the duration of the fever seems to be shortened. In children with repeated febrile movements due to inflamed adenoids the instillation into the nostrils of a one per cent. collargol solution frequently removed the trouble permanently, while in erysipelas occurring in infants an ointment of colloidal silver brought about recovery in a rather large proportion of cases. In tuberculosis with fever the agent, used by mouth or inunction, appeared to lower the temperature and diminish expectoration.

REVUE DE CHIRURGIE

December, 1912.

Primary Cholecystectomy in Acute Calculous Cholecystitis.—R. Leriche and G. Cotte urge immediate operative intervention wherever cholecystitis is initiated with high fever, chills, or signs of diffuse peritoneal irritation, as well as in cases where the symptoms, though milder, are progressive and the general condition does not soon improve. As to the nature of the intervention, they maintain the superiority of cholecystectomy over simple drainage, on the ground that there sometimes occur after the latter secondary perforation and peritonitis, suppuration in the liver or kidneys, death from more or less clearly marked secondary septichemia, or finally chronic gallbladder disease. Cholecystectomy is easily performed, not dangerous, and insures a good ultimate result just as early appendectomy does in appendicitis. Cholecystectomy is indicated where the general condition is too grave to permit of the radical procedure, or where the operative difficulties are too great, e. g., where the liver cannot be delivered through the wound or in the presence of pericholecystitis. By combining various statistics it is seen that among thirty-nine patients with acute cholecystitis alone, subjected to primary cholecystectomy from 1907 to 1910, only one died. Of fourteen patients with angiocholitis in addition, eleven recovered after cholecystectomy with drainage of the duct, while three out of four succumbed after cholecystostomy. Six cases operated in by the authors, including one with perforation, all ended in recovery after cholecystectomy.

Perihepatitis with Passage of Bile into Peritoneal Cavity in the Absence of Perforation of the Biliary Tract.—Sven Johansson reports the case of a woman, aged seventy-six years, with symptoms suggesting appendicitis, in whom upon opening the abdomen, the entire right side of the peritoneal cavity was found strongly stained with a fluid of the color of bile. No trace of a perforation in the gallbladder or ducts could be discovered, and this was confirmed by histological examination of the entire extract—the gallbladder after its removal by cholecystectomy and the ducts after patient's death six days later. The local findings were limited to a catarrhal cholecystitis with hemorrhages in the mucosa, together with acute inflammatory changes in the subserous tissues and marked enlargement of the lymphatic glands. The author gives the histories of four similar cases previously reported by other observers, and discusses the cause of the exudation of bile through the gallbladder wall, without reaching any definite conclusion.

Rôle of Veins in Collateral Arterial Circulation.—E. Ney presents clinical and experimental evidence emphasizing the importance of ascertaining and, if necessary, artificially modifying, the condition of the venous circulation when large arteries are ligated. If the venous channels are normal, the low blood pressure occurring in the arterial collateral vessels as a result of the ligation of a large artery may not be sufficient to overcome the suction exerted in the veins, with the result that in a limb, for example, the distal parts will receive little or no blood and become gangrenous even though the collateral arteries be enough developed to supply them adequately. Such a condition is easily remedied by ligating the vein or veins corresponding to the artery occluded. The pressure in the collateral arterial circulation is thereby increased and the distal parts supplied with enough blood to tide them over the early critical period. The indications for ligating the vein may be ascertained during the operation of arterial ligation itself. If, the extremity being pale and apparently lifeless, compression of the venous trunk causes at once a return of the normal color, its ligation may be considered indicated.

REVUE MEDICALE DE LA SUISSE ROMANDE.

December, 1912.

Treatment of Osteoarticular Tuberculous Cavities by Mosetig's Method.—Machard reports eighteen cases in which the cavities were filled with the Mosetig-Moorhof iodoform mixture. There were seventeen recoveries and the remaining case was improved. Primary union without elimination of the wax was obtained in five instances. The procedure will not replace conservative treatment, but should be employed where the latter has failed and may be of great service also where the patient's general condition or social situation demands rapid results. In certain cases of bone tuberculosis, growing worse without apparent reason, notwithstanding careful, persistent treatment, the method may likewise be useful. Residual suppurative processes may sometimes be attenuated or even overcome by it. Patients treated with the bone filling recover more rapidly than others, and sometimes exhibit a distinct improvement in their general condition. Resections need not be so radical when combined with Mosetig filling as without, and the sequelæ are better.

Spontaneous Complete Pneumothorax Tolerated for Fifteen Months.—R. Burnand reports a case of tuberculosis in which, because of dyspnea occasioned by an extensive serofibrinous exudate, occupying what had previously been a pneumothorax, three punctures were made, with removal of 500, 300, and 950 c. c. of fluid, respectively. Endothoracic conditions were thereby altered more than had been intended, rapid and almost complete resorption of the exudate taking place, with the result that irregular fever returned and the tuberculous process progressed. After subsequent temporary improvement the other (right) lung became involved and death took place. At autopsy the left lung was found reduced to a largely fibrous mass of the size of a hand. The functionally useful portion of the right lung, as auscultation had itself shown

for two months before death, was limited to one-half of its inferior lobe, whence the author concludes that in the practice of artificial pneumothorax, too much stress need not be laid on the presence of a few quiescent lesions on the side opposite that compressed. The heart did not show any marked signs of insufficiency in the last weeks of life; this the author attributes to the fact that for a year injections of ten per cent. camphorated oil had been given almost daily and small doses of digitalis periodically.

LANCET.

January 18, 1913.

Etiology of Endemic Goitre (Lecture I).—

Robert McCarrison reviews the facts of distribution and prevalence of this disease, showing that it is found in all countries, regardless of geographical conformation or climatic conditions, where man tills the soil, and that it is by far most prevalent in the deep and narrow valleys among the mountain ranges of temperate or subtropical zones. All races suffer, there is a hereditary disposition, and the disease is much more common among those who handle the soil. The endemic prevails with different degrees of intensity in different countries and in different parts of the same country, or even of the same region. The disease has made its appearance in many regions in which it was previously unknown, and McCarrison describes the invasion of a village with the endemic. In general it is the young who are the most involved, particularly in regions in which the disease is relatively new. The disease may completely disappear from a region. The disease is at its height during and after the rainy season, it is known to occur in epidemic form, it is of slow development, requiring at least a month's exposure for its acquirement, and disappears if the patient leaves the infected region after a few months' residence. In some of the infected areas domestic animals are found suffering with the disease, and the relative rarity of such a finding has been shown to be due to a natural resistance to the disease on the part of these animals. There is a great mass of evidence, all of which combines to afford almost conclusive proof that certain waters contain some substance which is capable of causing the disease. This latter evidence is supported by animal experimentation.

Treatment of Pelvic Inflammation by Auto-inoculation.—Harold Chapple induces local hyperemia of the pelvic region by means of a cradle of incandescent lamps, and finds that to complete the induction of congestion it is necessary to have the vaginal canal dilated and exposed to heat and light during the operation. The result of such local hyperemia is the same here as in any inflammatory process, that is, it induces a local reaction with the liberation of an excess of toxins into the blood and the stimulation of a secondary response with the development of immune substances. The dose should be carefully regulated by the extent of the reaction to the treatment, and should be so spaced as to avoid the development of the negative phase to too great an extent. The method is not alone applicable to those cases in which there is active bacterial infection, but is of value also in those in which the bacterial infection has died out, leaving

a sterile collection of pus. In such cases the local hyperemia serves to hasten and render more complete the process of absorption.

Tetanus Successfully Treated by Intravenous Injections of Paraldehyde and Copious Injections of Normal Saline.—Oliver Atkey used repeated injections of from five to fifteen or more c. c. each of paraldehyde and ether by intravenous injection to control the tendency to spasm and convulsions. With each such infusion he also gave large amounts of saline solution by vein to hasten the elimination of the tetanus toxine. As intimated in the title, the patient made a good recovery under these measures. He found the action of the paraldehyde in bringing about muscular relaxation to be prompt in onset and lasting in point of time.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

January 25, 1913.

Relief of Pain Due to Metastases Pressing on Nerve Plexuses by Section of the Opposite Anterolateral Column of the Spinal Cord, above Entrance of Involved Nerves.—Edwin Beer concludes by observing that, surgically considered, the operation of section of the anterolateral column without doing serious damage to the rest of the spinal cord is not only feasible but easy. From a therapeutic standpoint the almost complete relief from pain following this surgical procedure met the indications present in the case reported, and will give relief to other sufferers similarly affected. Considered physiologically section (complete?) of the anterolateral column produces loss of pain sense on the opposite side of the body, a disturbance in the thermal sense (suggesting that the fibres for heat and cold are dissociated in the cord), and slight disturbance of deep pressure sense and slightest disturbance in touch sense (both being impaired without producing any disturbance of the sense of position).

Possible Factor in the Causation of Pellagra.—Allan H. Jennings and W. V. King conclude that if pellagra is caused by an infection, especially of protozoal origin, and is transmitted by an insect, the conditions existing in the region of pellagrous endemicity in South Carolina, the lice, fleas, mosquitoes, and bedbugs must be excluded from serious consideration. The gnat (*simulium*) is also excluded. The biting stable fly, *Stomoxys calcitrans*, however, is under strong suspicion. If the causative organism is a bacterium, invading the body through the mouth or skin, the house or typhoid fly (*Musca domestica*) and those whose habits resemble it would lie under strong suspicion.

Clinical Data on Malignant Renal Tumors.—W. F. Braasch emphasizes the importance of immediately finding out the source of every hematuria, for it is, particularly when sufficiently marked as to color the urine, always to be looked upon as an indication of some grave condition in the urinary tract. The writer would regard every case of hematuria as a result of a malignant process unless some other condition could be definitely proved. Renal tumor may grow insidiously or lie dormant over a period of years; if hematuria, tumor, or pain indicates its existence, surgical relief should at once be given.

MEDICAL RECORD.

January 25, 1913.

Action of Lactic Acid Bacilli on the Percentage of Glucose in the Urine in Diabetics.—Philip Horowitz observes that in cases of diabetes that have come to autopsy there is a general agreement that changes are found in the pancreas, especially in the islands of Langerhans, and that these changes are probably to be found in all cases of diabetes, with perhaps irritation and changes in the suprarenals, thyroid, nervous system, and hypophysis; nevertheless, these changes are also the result of an autointoxication. In cases unaccompanied by indicanuria and autointoxication definite causative factors producing the glycosuria are present as in thyroidectomy, ether narcosis with a probable parenchymatous degeneration of the liver, etc. In the larger number of cases there is a close relation between the indican output and that of the sugar. Correction and cure of the autointoxication removes the irritating influences on the sugar regulating apparatus. *Bacillus bulgaricus* overcomes autointoxication by destroying putrefaction, and changes the reaction of the intestinal tract from alkaline to acid. As a sequence to the inhibited or slower carbohydrate digestion in the presence of this lactic acid, the time of carbohydrate digestion is lengthened, and only small amounts of sugar are formed and absorbed; so that we gradually, in this way, increase the tolerance for carbohydrates until a normal tolerance appears.

Influence of Sodium Chloride on Hydrochloric Acid Secretion by the Stomach.—A. L. Benedict has almost invariably found that on a diet as nearly salt free as possible without special preparation of foods before they reach the cook, hyperchlorhydria lessens. It is not sufficient, however, merely to forbid the use of salt at the table, but it must not be used in the preparation of the patient's food, and salty meats, salt butter, etc., must be excluded. Hyperchlorhydrin abated in this manner returns if an ordinary salt rich diet is resumed. In some cases a superexcitability of the oxyntic cells exists so that they produce an excess of hydrochloric acid with the comparatively small amounts present in the body and assimilated, or rather appropriated, from ordinary foods. Although generally representing a mere functional tendency, hyperchlorhydria is usually caused by a definite disease, probably a numerical hyperplasia of oxyntic cells. We can absolutely control the functional tendency by diet and other means and treat recurrences as satisfactorily as in most diseases. Although normal acidity is brought about, the patient is no more free from the underlying disease than a diabetic is free from diabetes because the urine is sugar free under diet. Concerning hypochlorhydria, it has been shown that ingesta containing an excess of salt tend directly to diminish gastric secretion. We cannot, therefore, expect to benefit hypochlorhydria directly and immediately by giving salt. In many cases there is a definite atrophy of the gastric tubules; in others a failure of glandular functional activity or a failure of innervation. In occasional cases of hypochlorhydria, however, it is found that the moderate, rational increase of salt, combined with other appropriate dietetic and hygienic measures,

will facilitate the reestablishment of an adequate acid secretion.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

December, 1912.

Effects of Medicinal Doses of Aconite upon the Pulse Rate.—R. D. Rudolph and C. E. C. Cole have found by experiment that small doses of aconite have no apparent effect upon the pulse rate, even when the drug is active. If dangerous effects have followed small medicinal doses of aconite, as has been occasionally reported, they have been due either to some mistake in the dispensing or administration of the drug, so that the patient has received far more than was intended, or an idiosyncrasy must have existed so that toxic effects followed a dose, which ordinarily has no effect. The writers observe that the present pharmacopeias contain many substances which might well be left out, and they believe that aconite, certainly in the doses recommended, is one of them. They allow, however, that aconite when given in massive doses is extremely powerful and may be of great value where it is desired to slow the pulse or obtain some of its other effects.

Lupus erythematosus and Raynaud's Disease.—M. B. Hartzell concludes that the nature of the relationship between these two maladies is largely a matter of conjecture, as our knowledge about their pathogenesis is too limited to explain their occasional coexistence. He advances the theory that both at times are due to a common cause, most probably some toxine circulating in the blood, which acts primarily upon the vessel walls, producing vasomotor and inflammatory changes in the skin and subcutaneous tissues. He is inclined to the opinion that erythematous lupus should be considered a toxic erythema.

Some Features of the Gross Anatomy of the Spinal Cord and Nerve Roots, and Their Bearing on the Symptomatology and Surgical Treatment of Spinal Disease.—Charles A. Elsberg recommends the following method for the exposure and division of posterior roots to the lower extremities: Remove the spinous processes and laminae of the eleventh and twelfth dorsal vertebrae (and of the first lumbar if necessary) in the usual manner, expose the "fork" of the dentate ligament and identify the first lumbar posterior root, carefully elevate all of the posterior roots of the side to be operated on (which lie dorsal to the lateral fibrous band on the side of the lumbosacral cord) upon a bent probe passed underneath them, identify and isolate the desired posterior roots by counting from the first lumbar root, and divide the roots in the usual manner.

Complement Fixation Test in the Diagnosis of Gonococcus Infections of the Genitourinary Tract in Male and Female.—Hans J. Schwartz and Archibald McNeil conclude that a positive reaction denotes the presence or recent activity in the body of a focus of living gonococci. A negative reaction does not exclude gonococcus infection, but should be accorded considerable importance. A strong positive reaction may not be looked for earlier than the fourth week, and then only in very acute cases with some complication. If the disease is limited to the anterior urethra a positive reaction is not obtained. A positive reaction does not entire-

ly disappear until seven or eight weeks after cure, and if then present the patient still harbors gonococci. Isolation of the gonococcus in culture is the only absolute, bacteriological proof of gonococcus infection. The technic of the latter is more difficult than that of the complement fixation test. A positive reaction is obtained in 31.4 per cent. of cases regarded clinically as postgonorrheal. In sixty-two cases of chronic prostatitis with history of gonococcus infection within three years, a positive reaction was obtained in 54.8 per cent. In 165 cases considered clinically cured for at least three months, 13.2 per cent. gave positive reaction. In women, unless there is some involvement of the cervix, positive reaction is not probable. Finally, the complement fixation test should be especially useful in gynecological diagnosis on account of the unreliability of the bacteriological diagnosis of gonococcus infection in women.

Indicanuria.—William G. Morgan remarks that the presence of excessive amounts of indican in the urine is a very frequent occurrence. Indican (indoxyl sulphate of potassium) is nontoxic, but the indol from which it is formed is slightly toxic and may produce frontal headache, mental irritability, insomnia, etc. It is possible that excessive indol absorption from the intestine over a considerable length of time may, by stimulating the adrenals to increased secretion, be a factor in producing arteriosclerosis and chronic nephritis. The writer uses the indican test because he believes that in most cases the products of bacterial decomposition, or digestion, of proteids in the intestines (indol, skatol, phenol, cresols, and toxalbumins) develop and are absorbed. As we have no means of determining the quantity of the more poisonous toxalbumins, we must estimate their amount by the degree of putrefaction, as measured by the amount of indican excreted in the urine. The writer uses the ordinary test. While all cases of intestinal putrefaction do not result in indicanuria, the writer believes that excessive indican in the urine always indicates abnormal functioning and that the causes should be found and removed.

AMERICAN MEDICINE.

December, 1912.

Disease as a Factor in the Evolution of the Human Family.—Lawrence Irwell divides diseases into two classes, those which medical science is able to deal with successfully, and those which prove fatal in spite of medical skill. The latter class maintains the nation's strength. The danger of degeneration appears when any disease of this class must be added to the former class, as national efficiency depends upon the survival of those best adapted to the environment. The cause of the danger lies not so much in the disease, as in the advance of scientific knowledge which frees the individual from the necessity of fighting the ills of life himself. Some congenital defects that formerly aided in the elimination of the unfit are becoming less potent as they are compelled to work without the assistance of disease producing microbes, since microbes are being rendered innocuous by the use of scientific methods and partly because the race is slowly rising superior to them. Since under these

conditions greater defect (wider deviation from the normal) will be possible without reaching the fatal limit, a lower standard of health, especially of physique, will survive and procreate offspring inheriting their abnormalities, and there will be a general lowering of the physical strength of the people generally. There are, however, certain organs which in civilized man must be sound, although not necessarily so efficient as in his barbarian ancestors. On the soundness of the heart, liver, muscles, nerves, and intestines the general vigor of the individual depends, and these qualities, which are essential to general efficiency will die harder than those (soundness of teeth, keenness of sight) which in their perfection have become luxuries.

The Sluder Operation for the Removal of the Tonsils.—Charles J. Imperatori observes that when the faucial tonsil is removed either for hypertrophy or disease, it is essential that the removal be completed by enucleation. While advocating Sluder's operation, he observes that considerable practice is required before enucleation by this method can be successfully accomplished in every case, the difficulty usually being the removal of the right tonsil by right handed operators. When mastered the operation is a brilliant one, and the thorough enucleation of the gland, the shorter time and smaller number of instruments required, and most important the lessened trauma should make it the operation of choice, especially in children.

Intussusception in Infants; a Plea for Early Diagnosis and Operation.—L. Miller Kahn observes that this disease is a common affection in infants which has been marked by a high mortality. If unrecognized and untreated intussusception is almost uniformly fatal. The treatment of invagination of the bowel has now reached a high degree of efficiency. The operation in the early cases is extremely simple. A median abdominal incision, with the umbilicus as the middle point, is made. The mass is brought out, and beginning at the end nearest the rectum (aboral) is gently squeezed and "milked" toward the cecum and as the last portion is delivered gentle traction may be made on the invaginated portion, with great care. If reduction is impossible, an artificial anus is established or a resection done. The treatment of intussusception in infants is laparotomy. Delay in treatment is fatal in direct ratio to the delay. Palliative measures must not be considered. A good prognosis can be given with an early diagnosis and prompt operation.

The Exanthemata.—Wallace C. Abbott explains the action of arsenical compounds given by him during the acute febrile stage of the exanthemata, by saying that they tend to induce fatty degeneration of the newly formed and imperfectly organized products of morbid processes more effectively than the more resistant normal cells, favoring the speedy disintegration and absorption of the debris of disease, and affording, *pari passu*, a protective influence to the red blood cells that they may better resist the invading microorganisms. Sodium arsenate is given before meals if the stomach is weak; copper arsenite, if fermentation or gastrointestinal mycosis is present; quinine arsenate during the fever stage; caffeine arsenate, if we need a

diuretic and cardiac tonic; iron arsenate, in convalescence. The standard vital incitant is strychnine arsenate.

ARCHIVES OF INTERNAL MEDICINE.

December, 1912.

Peptid Splitting Agent in Saliva.—F. Smithies reports investigations conducted upon 334 individuals to determine the nature of the proteolytic substance recently discovered by Warfield in human saliva. He concludes that while the agent in question has certain characteristics of an enzyme, it would seem that a not inconsiderable factor in the proteolytic effect is the action of oral microorganisms, or products of their growth.

Thrombophlebitis in Typhoid Fever.—L. A. Conner maintains that thrombophlebitis is a much more frequent complication of typhoid fever than is commonly supposed, and probably occurs in from ten to fifteen per cent. of all cases. It develops gradually, its course is often latent for many days, and its classical symptoms usually appear only late in the disease. The thrombotic process is apt to be much more widespread than the pronounced local symptoms would suggest. Most of the pulmonary and pleural complications appearing late in typhoid are due to embolism of branches of the pulmonary artery. Such emboli are usually small, seem to arise chiefly from fresh, friable thrombi in veins which are not yet occluded, and give rise to symptoms that are often mild and transient. The obscure, late, recurring chills of typhoid are regularly associated with venous thrombosis, although the latter is frequently latent at the time. The symptom of tender toes can be shown to be associated with thrombophlebitis in a majority of the cases; it may be due to a periphlebitis, which sets up irritation or inflammation of the plantar nerves. Many of the unaccountable rises of temperature seen during convalescence from typhoid and most of the protracted and irregular types of posttyphoid fever are due to thrombophlebitis. The author's study is based upon eighty-two cases.

Peptolytic Power of Gastric Juice and Saliva, with Special Reference to Diagnosis of Cancer.—J. L. Jacque and R. T. Woodyatt affirm as a result of their investigations relating to the Neubauer and Fischer glycoltryptophan test for cancer that saliva free from bacteria does not split either Witte peptone or glycoltryptophan. Similarly, normal gastric juice free from blood, bile, and bacteria, and that from cases of benign subacidity, has no peptolytic power. In about eighty-eight per cent. of developed cases of gastric carcinoma, on the other hand, the stomach contents show a peptolytic power two to ten times the maximum seen in benign conditions in general. Witte peptone may be advantageously substituted for "ferment diagnosticum" in the Neubauer and Fischer qualitative test, with results in malignant cases as good as any published for glycoltryptophan itself. In nonmalignant cases the test was positive but once in seventy-six normal and subacid cases.

Relation of Uricolysis to Suboxidation.—F. G. Goodridge and N. B. Foster showed that retardation of the processes of oxidation, either by de-

privation of oxygen (carbon monoxide poisoning in human being) or by interference with cellular functions (potassium cyanide in dogs) is not followed by increased uric acid excretion. It appears improbable, therefore, that uric acid destruction in the body is a simple oxidizing process.

Erythremia, or Polycythemia, with Chronic Cyanosis and Splenomegaly.—W. S. Lucas points out that Vaquez's disease is by no means as uncommon as was at first supposed. He has collected reports on 179 cases of so called polycythemia, of which 149 appeared to be instances of true erythremia, the remainder being open to doubt as to their true classification. The condition must be differentiated from the relative increase in the red cell count accompanying acute diarrhea, dysentery, etc., in which the volume of the blood is decreased, as well as from erythrocytosis, or secondary absolute polycythemia, typically seen in congenital heart disease, particularly pulmonary stenosis, in chronic heart and lung diseases, and in certain individuals residing at great altitudes. The special characteristics of the polycythemia in Vaquez's disease are that it is marked, persistent, absolute, and of unknown origin.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN PEDIATRICS.

Stated Meeting, December 12, 1912.

Dr. WILLIAM SHANNON in the Chair.

The Double Function of Fats and Carbohydrates.—This paper, by Dr. HENRY DWIGHT CHAPIN, appears on page 269.

Dr. GRAHAM LUSK recalled that the nutrition of the body depended upon furnishing food for maintenance, repair, and growth. All these factors appeared in the infant. The baby at the breast took food containing calories sufficient for his maintenance and about fifteen per cent. in addition, which latter he added to his body for growth. His own instinct led him to take nourishment sufficient to accomplish this result. If he failed to take this additional fifteen per cent. of fuel value, he would receive only a maintenance ration and would not have material for his growth. This instinct as regards taking a sufficient quantity of food, belonged to the race. In the extended experiments performed under the auspices of the Remsen board, it was astonishing to find how the quantity of bread taken by each individual daily, was practically constant, not varying more than twenty grammes for the individual. Here, as in infancy, instinct furnished the guide for nutrition.

If, however, the baby was not nourished in this natural fashion, and the food was administered to him without scientific reasoning, it was a matter of luck whether he got sufficient support for his organism to cause him properly to grow. The foods which were administered to him were protein, fat, and carbohydrates. Protein was made up of a great many structural units called aminoacids. These aminoacids were in number as many as the letters of the alphabet, and their possible arrangements as manifold as there were words in the dictionary. The protein was broken in the intestinal tract into these several aminoacids and entered the blood in the form of aminoacids. These various aminoacids served to build up the varying portions of the machinery of the cells. Protein characteristic of the cytoplasm, proteins characteristic of the granules and of the nuclei of cells were laid down within the several organs of the body from these aminoacids, and these protein molecules became active portions of the machinery of cell life.

Even in babyhood, there was a wear and tear upon the protein constituents of the cells as was manifested by the waste of nitrogen in the urine of the infant when protein starvation occurred. It was therefore necessary to administer in the food, protein sufficient to repair the wear and tear quota which had been destroyed, and in addition to that to give enough to furnish new protein building stones for the constructive growth which was inherent in the protoplasm of the young of all species. Beside protein, however, material must be furnished to supply energy for the maintenance of the movements of life. This material was given in the form of carbohydrate or of fat. In experiments which were performed in Doctor Lusk's laboratory, young pigs were brought up on skimmed cow's milk to which was added three per cent. of sugar; the pigs grew normally upon this diet despite the fact that ordinary sow's milk contained eleven per cent. of fat and but little carbohydrate. There was no question that carbohydrate might supplant fat in the nutrition of children if that were deemed necessary. Fat, on the contrary, could not supplant carbohydrate entirely because under circumstances of an exclusive fat protein dietary acidosis appeared.

It was necessary to consider the calorific requirement of the infant when a proper dietary was made. This should contain during the first three months ninety calories, and during the period immediately following at least eighty calories to each kilogramme of body substance. In experiments which Dr. John Howland performed in his laboratory, they had seen an infant eliminate fifteen calories an hour, hour after hour, after taking a usual milk mixture. Food itself in ordinary quantities might somewhat increase metabolism. The addition of protein so that the protein content of the milk was doubled caused an increase in the heat production of the child from fifteen calories an hour to nineteen calories an hour. This increase of heat production was due to the specific dynamic action of protein. The speaker had recently shown that this was caused by the stimulation of the protoplasm through the action of certain aminoacids.

It had been stated that the heat value of foods was largely lost through the work expended in the digestion of the food. However, one should remember that the breaking down of protein into aminoacids, or of fat into fatty acid and glycerin in the intestine, was not accompanied by the evolution of heat. Furthermore, if agar agar was given, as had been shown by Benedict, there was no increase in metabolism, notwithstanding a great activity on the part of the intestinal tract. Again, Benedict had shown that cathartics which strongly stimulated the intestinal tract had no effect at all upon the heat production in the organism. So the *Darmarbeit* of Zuntz as a causative factor of the increased metabolism after food ingestion must be abandoned.

In Doctor HOOBLER'S chart two points might be brought out. In the first place, the addition of protein to the body not only depended upon the formula representing the composition of the milk ingested, but also upon the protein content of the organism. A large quantity of protein would be absorbed by cells whose protein supply had been depleted, whereas with the same diet a much smaller quantity of protein or perhaps none at all would be deposited by an organism whose protein content had reached a condition of optimum saturation. In the second place, Doctor Hoobler had stated that in one of the children there was marked protein retention during a period of undernutrition and this was accompanied by a gain in weight. This was not surprising because protein was added to the body for the upbuilding of cell tissue, and when this took place there was a deposition of 0.8 calorie for each gramme in such added tissue, whereas when fat was withdrawn from the tissues, there was a removal of 9.3 calories for each gramme of fat oxidized. Doctor Hoobler's results could easily be obtained if muscle tissue were added to the body, even though tissue fat was being used at the same time for the maintenance of the energy requirement of the organism.

Doctor Chapin had spoken with regard to the importance of metabolic water. He had estimated that if a man of seventy kilogrammes net weight should produce a hundred calories of heat an hour, and this hundred calories of heat were derived exclusively from carbohydrate, then in the oxidation of this carbohydrate 0.24 gramme of water would

be produced each minute. That would mean the production of three milligrammes of water for each kilogramme of body weight or three parts of water for each million parts of body weight. Since the whole volume of blood (fifty c. c. for each kilogramme) circulated at least once per minute bearing perhaps water and foods from the intestine, it hardly seemed possible that metabolic water amounting to three milligrammes for each kilogramme could in any way be influential in the exchange of food between the blood and the tissues. It seemed as though the osmotic pressure of the food stuffs within the blood would be the determining factor in their passage from the blood stream to the cell.

Dr. SAMUEL S. ADAMS, of Washington, D. C., thought Doctor Wilcox was certainly to be congratulated on his pronounced success with protein milk, and particularly on the number of his patients. While 261 cases in a population of millions would not perhaps impress the general public as convincing, the results obtained in these cases were significant to physicians. They must remember that the class of cases treated was about the worst which they had to encounter. It was his custom for the past fifteen years to leave Washington during the warm season, and therefore he had not had the wide experience of many in these gastroenteric disorders of infants and young children. On account of the extreme heat and humidity Washington was like a deserted village in summer. Still, there were many people who had to remain in the city, and the infant mortality was generally frightful. Last year the physicians at the Children's Hospital made a trial of the Finkelstein method of feeding, but the results met with were not such as to afford much encouragement. The food was prepared in exact accordance with the directions of the authors of the method, but it was found very difficult to get the children to take it, and it was seldom that more than eight ounces of it could be given in the twenty-four hours when they had previously taken from eighteen to thirty ounces of a milk mixture. The cases were not selected. They were usually very bad ones, and the infants kept on dying, as under other plans of treatment; so that the mortality was very large. It seemed, therefore, that they were in just the same unsettled position regarding infant feeding as years ago. The speaker was much impressed, however, with Doctor Wilcox's emphatic statement that protein milk was to be looked upon as a temporary therapeutic measure, and not as a permanent diet. While the doctor spoke of the marked improvement in the cases treated by this means, he should like to hear how the mortality compared with that of previous years. As to the general mortality among children in institutions, at times they met with good results from almost any form of treatment. Twelve or fourteen years ago it was the practice at the Children's Hospital to order cold baths for every case of typhoid fever as soon as the temperature rose to a certain degree. Then came the reaction from this method of treatment, and it was now five or six years since he had ordered a bath in typhoid. Yet the results have been better since the bathing was abandoned. In considering the results of treatment in diarrheal disease, as in many other affections, they should always take into account the atmospheric and seasonal conditions. For instance, the mortality at the Children's Hospital, Washington, was very much less last summer than during the previous one, and this was unquestionably due largely to the favorable meteorological conditions prevailing. Generally in Washington, from the latter part of June on, the thermometer remained day and night above 85° F. for days, and the people did not get any relief. Last summer, however, after the tenth of July the weather was comparatively cool, with the favorable effect on the infant mortality which has been mentioned. He would certainly urge a further trial of protein milk, and, regarding this as a strictly therapeutic agent, and adopting the modifications of Finkelstein's method which Doctor Wilcox had described, would hope to see better results in the diarrheal affections of infancy, even when the weather conditions were unfavorable.

Dr. J. LOVETT MORSE had been much entertained and interested by what he had heard. He had every reason to believe the exact truthfulness of the report, and must perforce accept the results which had been given; and yet he was unable to understand just how the same method and

the same food were efficacious in conditions so varied as those met with in the diarrheal diseases of infants and young children.

Dr. FRITZ TALBOTT, of the Harvard Medical School, too, had been very much interested by the papers of the evening, but also, like Doctor Morse, wondered how this new method could be effective in such different conditions as the fermentative and putrefactive.

Dr. L. E. LA FETRA, for the past three years, had used protein milk in the treatment of infantile diarrhea, first at the Babies' Hospital and later at Bellevue Hospital. It was by far the best therapeutic agent we had, for nine out of ten babies showed marked improvement at once, the bloody stools ceasing usually after the first forty-eight hours. It was of great importance that the protein milk should be made from skimmed milk. The good results in putrefactive cases were to be attributed to the presence of living Bulgarian lactic bacilli. Protein milk increased the tolerance for other food and in certain cases where breast milk caused diarrhea, substitution of protein milk for some of the nursings enabled the infants to take the breast milk without this symptom. Other foods might be used along with the protein milk or substituted for it within a few days, and in this manner, a rapid transition could be made from the protein milk to simple milk modifications, beginning always with the use of skimmed milk.

Dr. GODFREY R. PISEK emphasized the point that the use of protein milk was a therapeutic measure. After employing it for three or four days they did get a change for the better in a great number of cases. At first he did not get such satisfactory results, because he did not fully understand the preparation and use of the protein milk. An important point in this method of treatment was the employment of only skim milk. Doctor Chapin was right in emphasizing the importance of the metabolic water.

Dr. ROWLAND G. FREEMAN, in regard to Doctor Chapin's paper, believed that the estimate of caloric values was most important, especially as a guide against underfeeding.

Dr. CHARLES GILMORE KERLEY regretted that he had heard but a portion of the paper of Doctor Chapin. He had found protein milk a useful addition to the diet of children with diarrhea. It could be digested before skimmed milk could be tolerated, and was of much use as a means of supplying substantial nourishment at a time when it was needed very badly. He felt that sugar and milk fat were accountable for not a few of the disorders of older children, a condition brought about by the defective oxidation of the carbohydrates and fats. The disorders had a peculiar tendency to be cyclic in character, and were represented in cyclic vomiting, recurrent bronchitis, eczema, and periodic, so called bilious attacks.

Doctor CHAPIN in closing stated that he had written his paper because they had been accepting certain fallacies and he thought that they ought to have a clearer understanding of the combustion of foods, with the results effected in the system. There was need of such help, especially, it seemed to him, in the troubles they had had in regard to infant foods. He had long believed and taught that the biological method gave the true solution of the problems of infant feeding.

MEDICAL ASSOCIATION OF THE SOUTHWEST.

Seventh Annual Meeting, Held at Hot Springs, Arkansas, October 8, 9, 10, 1912.

The President, Dr. A. L. BLESCH, of Oklahoma City, in the Chair.

(Concluded from page 264.)

Etiology and Pathology of Infections of the Biliary Tract.—Dr. C. C. NESSELRODE, of Kansas City, Kan., said that the intelligent treatment of cholelithiasis presupposed a clear conception of the pathology of the disease, of the means of treatment at command, and the objects obtainable by their use. To attempt by internal medication to dissolve a gallstone that was insoluble; to cause the passage through the biliary ducts of a gallstone when the ducts were impassable to a stone of its size; to attempt to cure supposed desperate symptoms by measures directed to the stomach when the cause of the symptoms was adhesions about the gallbladder or a condition within the biliary tract, was as futile as it was irrational.

Dr. JABEZ N. JACKSON, of Kansas City, Mo., said that all these cases of gallstones were infections to begin with, and these infections came through the radicles of the portal vein but not so often through systemic infection of the hepatic artery. It was a strange coincidence that surgeons had operated for appendicitis and likewise found gallstones, in which cases they might have made a diagnosis of both appendicitis and gallstones and found both, and there were many other instances in which surgeons had had humiliating experiences. Twice, he had made a diagnosis of appendicitis, removed the diseased appendix, and two or three days after the operation the patient had a typical gallstone attack.

Dr. A. L. BLESCH, of Oklahoma City, said that every surgeon had found in the abdomen the frequent association of appendicitis with galltract infection, and ulcer of the stomach or duodenum. This association was too frequent to be accidental, and it was almost culpable to-day in removing the appendix, in the absence of suppuration, not to explore these other points inside at the same time. When this was done the operators would not find themselves in the predicament described by Doctor Jackson.

Dr. MERRILL H. LINDSAY, of Topeka, Kan., stated that infection almost never came from the general abdominal cavity. Doctor Simpson in experimenting on this subject, introduced aniline dyes into the abdominal cavities of dogs and recovered it from the gallbladder. This work would indicate that there was considerably more opportunity for infections arising from that experience.

Dr. JOHN F. BINNIE, of Kansas City, Mo., fully believed that the majority of cases of gallbladder disease, cholecystitis, of which gallstones were an accident, and ulcer of the stomach were due to the same cause, namely, the absorption of an unaccustomed quantity of poisonous material from the body, that was, through the portal circulation. Postoperative hemorrhages were due to a reverse embolism of the gastric vein. These hemorrhages were from lesions of the mucosa of the stomach which recovered just as promptly as acute ulcer of the stomach recovered if it did not kill the patient in the meantime.

Dr. DAVID A. MYERS, of Lawton, Oklahoma, said that the chemical formation of stones in the gallbladder and liver was a complicated process. Women were more subject to gallstones than men, especially women who had been pregnant. While infection was said to be the primary cause of all these troubles, to his mind there was always more or less the formation of bacteria in the ducts and gallbladders.

Dr. HOWARD HILL, of Kansas City, Mo., called attention to an anatomical point, namely, that in certain cases we should find a distended gallbladder with spaces, with absolutely no obstruction in the biliary tract, and bile would flow through in an hour or so. He had come to the conclusion that there was an abnormal disposition of the peritoneal fold which surrounded the so called pelvis, and whenever the gallbladder became distended beyond a certain point, it compressed the cystic duct, and the gallbladder was distended by its own secretion.

Doctor NESSELRODE agreed with Doctor Binnie that the gallstones themselves were an incident in connection with cases of cholecystitis. There were not as many gallbladders removed to-day as formerly. While the gallstones were removed when found to be present, the real condition was an infection, and drainage was a very important thing in this type of cases.

Treatment of Compound Fractures.—Dr. CHARLES HENRY BLICKENSERFER, of Shawnee, Okla., said that the successful treatment of compound fractures depended upon three principles, and these were sepsis, drainage, and proper fixation or immobilization. The nature of these injuries was such that there was more or less destruction and laceration of the soft parts, and more or less extensive fragmentation and comminution of bone. The vascular supply was interfered with on account of laceration or tearing of bloodvessels, resulting in a large outpouring of blood and exuded serum. These wounds were therefore highly susceptible to infection. Primary drainage was required in these cases, supplemented by efficient counter-drains as soon as indicated. The resort to secondary drainage was many times imperatively demanded and must be ample for the reason that infection, which was now established, presented a condition urgently requiring the relief by the immediate and complete removal of all infec-

tious matter and secretions resulting from bacterial activity and tissue destruction. Secondary drainage was quite often an indication that primary drainage was incomplete or insufficient, and if a wound of this character was to be drained at all, it should be done at the first dressing and provision made for free and extensive drainage. Compound fractures should receive early and free drainage. Operative intervention here, as in simple fractures, should be deferred for a week or longer until asepsis was assured and the bones were in the most active state of repair. Exceptions to this rule were to be found in instances when displacement and deformity were great and reduction otherwise impossible.

Cell Pathology of Alcoholism and Morphinism versus Short Cut Treatment.—Dr. S. GROVER BURNETT, of Kansas City, Mo., stated that no habitual user of alcohol and morphine could be cured by any method that did not take into account the repair of the damage done by the narcotic to the chemistry and structure of the brain cells, and thereby restored normal function. No physiological process was ever restored by further poisoning an alcoholized or morphinized brain with hyoscine and other deadly narcotics.

With the accumulated pathological evidence of cell damage by alcohol, it was evident in accentuating the absurdity of any few days' treatment of any kind being curative. This cell pathology pointed to the necessity of a delicate therapeutics in the acute exacerbations to avoid further damage to the already badly damaged cell. It pictured to us how delirium could arise from the disarrangement of the cell chemistry and how a continued chemical disarrangement could terminate in interior molecular cell change, disabling cell function, as shown in the vicious hallucinations and illusions of the so called toxic psychosis, and how the psychosis could progressively pass into the so called alcoholic insanity, and later into a true alcoholic dementia when the secondary cell atrophy followed.

Morphine overstimulation did two things, namely, first, it provoked perversion of metabolism and, second, a secondary exhaustion fatigue. Fatigued nerve cells meant catabolic insufficiency and formation of acid which further exhausted the ganglion cells by establishing a change of chemistry within the cells. Fatigue acid formation, for the time, made overdrafts on the cell energy and resulted in reactive morphine depression and exhaustion. In healthy fatigue acid formation there was chemical compensation and elimination without resulting molecular damage; but in the continued, permanent, residual fatigue of morphinism a more or less constant acid polarization of the cell took the place of the normal alkaline cellular chemistry. The energy generating in the cell and the maintenance of the energy became so dependent on the abnormal stimulus of the acid polarization that sudden stoppage of morphine produced profound energy depletion, cell exhaustion, reversal of the accustomed abnormal chemistry—an interior chemical storm—dissociation of the function, delusions, and insane delirium.

The Value of Tuberculin in Diagnosis.—Dr. L. G. MOORMAN, of Oklahoma City, stated that a failure to react to tuberculin might mean, first, that the patient was not tuberculous; in this case the tuberculin remained inert regardless of the size of dose employed and this was the explanation in the great majority of negative cases. Second, the patient might have an established tolerance through chronic autotoxic tuberculosis or through tuberculin treatment; in which case a sufficient increase in the dose would overcome the tolerance and give rise to a reaction. Third, the tissues were no longer sensitive to tuberculin on account of the failure to produce antibodies, and no reaction resulted even when large doses were given; this was often the case in advanced tuberculosis.

After a careful study of the case history and a thorough physical examination, the cutaneous test should be employed with a view of confirming further any conclusion arrived at from symptom and physical findings, or any suspicion aroused by history or general appearance which could not be confirmed by physical examination. In the first instance, a positive reaction substantiated the diagnosis. In the second instance, a positive reaction called for further observation and repeated examinations and possibly a subcutaneous test with a view of obtaining a local reaction. The subcutaneous test should be employed in suspicious cases where the cutaneous test was negative. The

examination of the sputum and the use of the x ray often aided the diagnosis. The tuberculin reaction, so employed, was of great service in diagnosis and was extensively used in this way in most of the great clinics in this country and abroad.

Needless Traumatism in Rectal Surgery.—Dr. W. H. STAUFFER, of St. Louis, stated that after operating in over five hundred cases of hemorrhoids without paralyzing the sphincter and he had arrived at the following conclusions: First, dilatation exceeding one inch was unnecessary as a preparatory step in any operation on the rectum or anus; second, needless dilatation ruptured the muscle fibres, separated the nerve endings, invited infection, increased post-operative pain, frequently produced partial incontinence and prolonged convalescence. The so called nerve blocking method of local anesthesia, advocated and practised by Doctor Tuttle, of New York, and Doctor Hirschman, of Detroit, was not necessary unless one wished to mutilate the sphincter before he operated. Hemorrhoids could be easily everted by packing the anoscope with gauze, removing the instrument, and applying traction to the gauze. If the hemorrhoids were not ulcerated or badly congested they could readily be removed by the aid of the pressure anesthesia, the anesthetic being injected at the mucocutaneous line. The dressing and after treatment had been much simplified by the use of a finger cot filled with cotton instead of the rubber tube or gauze packing.

Plea for the Earlier Recognition of Certain Nervous and Mental Conditions.—Dr. E. P. BLEDSØE, of Little Rock, Ark., stated that the individual himself must be educated, and it was upon the physician that this burden necessarily fell. Many cases were mere individual problems, which might call for a detailed study of character and a process of reeducation along certain lines, while others might assume vast sociological and economic importance such as the question of defective children. Last and most important of all, the public must be educated to realize the fact that it was by the neglect of such problems as child labor, State care of epileptics, etc., that our asylums were filled with insane persons and our jails with criminals. Much of this might be prevented, for many cases had their incipency in childhood, often under the eyes of the school teacher and the family physician. It was the physician on whom both the public and the individual must depend for the solution of these problems.

Possible Relationship of Infectious Eczematoid Dermatitis, Dermatitis repens, and Acrodermatitis perstans.—Dr. RICHARD L. SUTTON, of Kansas City, Mo., drew the following conclusions: Infectious eczematoid dermatitis was a well defined clinical and pathological entity, and should be separated from the group of pustular eczemas in which it had heretofore been included. It was very probably due to the yellow or white staphylococcus. Histologically, infectious eczematoid dermatitis differed from dermatitis repens (a term which also included the so called acrodermatitis perstans of Hallopeau) principally in the site of the inflammatory process, and the cutaneous structures involved. In the first named, the pathological changes were confined almost wholly to that portion of the corneous layer which overlay the stratum lucidum, while in the last, the infection was more deeply seated, and the prickle cell layer bore the brunt of the attack. The histological findings readily accounted for the difference with which the two diseases responded to treatment. Infectious eczematoid dermatitis was quickly and favorably influenced by the simpler and milder antiparasitic applications, and when properly treated, an attack seldom extended over a fortnight. In dermatitis repens, on the other hand, it was usually very difficult to bring about a cure, and the disease often persisted for months in spite of the most vigorous treatment. Vaccine therapy, properly employed, was of great value in combating both infectious eczematoid dermatitis and dermatitis repens.

Election of Officers.—The following officers were elected for the ensuing year: President, Dr. W. T. Wootton, of Hot Springs, Ark.; vice-presidents, Dr. Walter B. Dorsett, of St. Louis; Dr. E. H. Carey, of Dallas, Tex.; Dr. J. H. Barnes, of Enid, Okla.; Dr. C. C. Nesselrode, of Kansas City, Kan.; secretary-treasurer, Dr. Fred H. Clark, of El Reno, Okla.

Kansas City, Mo., was selected as the place for the next meeting.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Forensic Medicine and Toxicology. By C. O. HAWTHORNE, M.D. Third Edition. New York and London: Longmans, Green, & Co., 1912. Pp. vii-344. (Price, \$1.70.)

This volume is a clear and succinct review of the more salient matters that should be thoroughly understood by medical men in courts of judicature. The work can hardly be called comprehensive, since the author, for some unexplained reason, has seen fit to omit from his pages a recital of individual cases, that so often act as a guide and serve to clarify the text. If the symptoms of poisons had been given more in detail, and their lethal doses shown more concisely according to accepted authorities, the volume would have been of more practical value to physicians and students. Nothing of a novel nature has been introduced; nevertheless, the book may be offered as a worthy compilation for student and practitioner. Almost one half of the volume is devoted to a study of toxicology, with a brief but intelligent appendix on poisons and their antidotes. The author's style is lucid, the index complete and easy of reference, and the whole appearance of the volume is a credit to the publishers.

Handbuch der Hygiene. Herausgegeben von Prof. Dr. M. RUBNER, Berlin, Prof. Dr. M. VON GRUBER, und Prof. Dr. M. FICKER, Berlin. IV. Band, 1, Abteilung. Leipzig: S. Hirzel, 1912. Pp. vi-483.

This volume contains some seven articles, dealing in considerable detail with the various subjects. The first, by Heubner, of Berlin, takes up the question of hygiene during childhood. Then follows a long article dealing with the arrangement and outfitting of hospitals. Abel contributes a paper dealing with the care and disposal of the dead body, discussing at some length the objections, and the dangers of burying. Kiskalt takes up the matter of the poor by dividing the subject into pathology, etiology, and prophylaxis. In considering the statistics of Munich he finds that the percentage of the insufficiently nourished has increased from 1.9 per cent. of the population in 1891 to 2.8 per cent. in 1906. In 49.3 per cent. the poverty was due to sickness and infirmity, and 32.6 per cent. to old age and inability to work. The same author writes also about the hygiene of prisoners, discussing the pathological conditions and their causes, also the prophylaxis. Süpfe contributes an article dealing with the care of those who are of school age. This takes up both the physical and the psychic aspects, the hygiene of the school house, the diseases prevalent in this period of life, and the proper oversight of the pupils. The volume closes with a paper on the organization for the public welfare. The topics treated are of interest and are well presented.

House Flies and How They Spread Disease. By C. G. HEWITT, Ottawa, Canada. Cambridge University Press; New York, G. P. Putnam's Sons, 1912. Pp. xii-122. (Price, 40 cents.)

This small book is a most excellent one. It takes up the natural history of the house fly and its relation to disease. Other species of flies sometimes found in the house are also described. Among these is the stable fly, *Stomoxys calcitrans*, but at the time of writing it was not known that this insect is considered to be the conveyor of infantile paralysis. This publication is interesting and valuable in that so much information has been rendered easy of access to both layman and physician.

The Mosquito. By ALVAH H. DOTY, New York. New York: D. Appleton & Co., 1912. Pp. 79.

Doctor Doty has succeeded very admirably in presenting in a form suitable to the lay public the general considerations concerning the habits of the mosquito and their bearing upon the health of humanity. The book contains the essential features of the life history such as method of propagation, breeding places, food, etc., also of the methods employed for the extermination of the mosquito. Doctor Doty emphasizes that "so far as possible, breeding places should be destroyed and not treated"; a most im-

portant point. The two mosquitoes chiefly dealt with are anopheles and the stegomyia. It seems somewhat of a mistake not to employ the newer nomenclature of calopus for the latter. This little publication, however, is of distinct value.

L'Avenir des prématurés: ses rapports avec la syphilis héréditaire. Par le Docteur GEORGES-RAOUL DÉTRÉ. Paris: G. Steinhil, 1912. Pp. 154.

This monograph is based on the observation of 205 prematurely born children seen during a number of years in the public dispensary of the schools of the seventh arrondissement of Paris. Syphilis was found to be the cause of the premature birth in 18.5 per cent. of the cases, against the two to three per cent. ascribed in the statistics of Vallais, Seropian, and others; a difference probably due to the employment of the Wassermann test to determine its presence, and the consequent cutting down of the number of cases ascribed to paludism or other indefinite or unknown causes by the older writers. The author's researches into the morbidity of these cases are of interest. In sixty-eight syphilitic prematurely born children strabismus was present twenty-seven times, epilepsy twenty times, sabre tibia seven times, deafness seven times, dental deformities four times, saddle nose four times, and keratitis four times. Finally, the mortality of the prematurely born is inquired into, with results quite in accord with those generally accepted.

BOOK AND MAGAZINE NOTES.

The winter 1812-1813 was not like this, its centenary. It was exceptionally cold and thus helped to contribute to the beginning of the downfall of Napoleon, who in May, 1812, sent forward his great army to conquer his only remaining foe on the continent of Europe, Russia. The history of this war is well known. It has been illustrated from all points of view, even from the medical, but the first medicohistorical sketch in English on *Napoleon's Campaign in Russia, Anno 1812*, has appeared only lately. The author and publisher is Dr. Achilles Rose, of New York, well known for his medical research, for his Greek studies, and as a purifier of medical nomenclature; he now appears in the rôle of historian. He does not write dry history, but gives in his book of 185 pages a very interesting account from the first crossing of the Niemen, May, 1812, to the return crossing of the same river, December, 1812. Beside the historical event the author gives a good review of its medical aspect: the treatment of the wounded and sick, the appearance of typhus fever, ophthalmia, and dysentery, the effect of cold and hunger, etc., are all well treated. Beside minor German surgeons whose accounts of the war are given, we find also quotations from Larrey, whose observations have become quite important, as "he was the only one who kept a record of the temperature," having a thermometer attached to his coat. How beloved was this surgeon is shown in a letter to his wife: "Ribes was right when he said that in the midst of the army, and especially of the imperial guard, I could not lose my life. Indeed, I owe my life to the soldiers. Some of them flew to my rescue when the Cossacks surrounded me and would have killed or taken me prisoner. Others hastened to lift me and help me on when I sank in the snow from physical exhaustion. Others, again, seeing me suffer from hunger, gave me such provision as they had; while as soon as I joined their bivouac they would all make room and cover me with straw or with their own clothes."

The book can be cordially recommended to our readers, as it is not only instructive but of fascinating interest, and will afford a pleasant hour or so after a hard day's work.

Meetings of Local Medical Societies.

MONDAY, February 10th.—Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society; Corning Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, February 11th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Medical Society of the County of Schenectady; New York

Obstetrical Society; Buffalo Academy of Medicine (Section in Medicine); Medical Society of the County of Rensselaer; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.

WEDNESDAY, February 12th.—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City Hospital; Brooklyn Medical and Pharmaceutical Association; Alumni Association of the Norwegian Hospital, Brooklyn; Richmond County Medical Society; Dunkirk and Fredonia Medical Society.

THURSDAY, February 13th.—New York Academy of Medicine (Section in Pediatrics); West Side Clinical Society; Brooklyn Pathological Society; Blackwell Medical Society of Rochester, N. Y.; Jenkins Medical Association, Yonkers; Society of Sanitary and Moral Prophylaxis, New York; Auburn City Medical Society; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua; Gloversville and Johnstown Medical and Surgical Association; Physicians' Club of Middletown.

FRIDAY, February 14th.—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Society of Clinical Serology; Society of Alumni of St. Luke's Hospital; Saratoga Springs Medical Society; Society of Ex-interns of the German Hospital in Brooklyn.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending January 29, 1913:

Anderson, J. F., Surgeon. Detailed to attend a meeting of the New York Milk Commission to be held in New York February 5 and 6, 1913. **Blount, B. B.**, Acting Assistant Surgeon. Granted thirty days' leave of absence from February 1, 1913. **Bryan, William M.**, Passed Assistant Surgeon. Relieved from duty at Cape Fear Quarantine Station, Southport, N. C., and directed to report to the medical officer in command of the Marine Hospital, Stapleton, N. Y., for duty and assignment to quarters. **Duffy, B. J.**, Assistant Surgeon. Relieved from duty at Honolulu Quarantine Station and directed to proceed to Manila, P. I., and report to the chief quarantine officer for duty. **Fox, Carroll**, Passed Assistant Surgeon. Relieved from duty in Manila, P. I., and directed to proceed to San Francisco, Cal., and report his arrival to the Bureau. **Francis, E.**, Passed Assistant Surgeon. Directed to proceed to Baltimore, Md., and New York, N. Y., for the inspection of laboratories. **Grubbs, S. B.**, Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for temporary duty and instruction. **Horning, H.**, Acting Assistant Surgeon. Relieved from duty at Philadelphia, Pa., and directed to report to Surgeon J. H. Oakley, Gloucester City, N. J., for duty in the medical examination of arriving aliens. **Korn, W. A.**, Passed Assistant Surgeon. Relieved from duty at Stapleton, N. Y., and directed to proceed to Manila, P. I., and report to the chief quarantine officer for duty. **Lumsden, L. L.**, Surgeon. Detailed to attend the annual meeting of the Conference on Charities and Corrections to be held at Danville, Va., January 27, 1913. **McMullen, John**, Surgeon. Directed to report at the Bureau for Conference relative to prevalence of trachoma in Kentucky and the measures necessary for its control. **Roberts, Norman**, Passed Assistant Surgeon. Relieved from duty in the examination of arriving aliens at Gloucester City, N. J., and directed to report to Surgeon W. C. Stimpson, Philadelphia, Pa., for duty. **Von Ezdorf, R. H.**, Surgeon. Directed to stop en route to station at Nashville, Tenn., and Montgomery, Ala., for the conference and for the collection of statistics regarding malaria.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the medical corps of the United States Army for the week ending February 1, 1913:

Hutton, P. C., Major, Medical Corps. Granted leave of absence for one month, about February 6th, with permission to go beyond the sea. **Kinard, K. W.**, Lieutenant, Medical Corps. Relieved from duty with Field Hospital, No. 3, Fort Leavenworth, and ordered to Fort McIntosh. **McKellar, H. R.**, Lieutenant, Medical Corps. Directed to proceed to the presidio of San Francisco, Cal., for temporary duty, from Vancouver Barracks. **Phillips, H. A.**, Captain, Medical Corps. Upon arrival of Lieutenant Kinard at Fort McIntosh, will proceed to the Army and Navy General Hospital, Hot Springs, Ark., for observation and treatment. **Reasoner, M. A.**, Captain, Medical Corps. Relieved from duty at Vancouver Barracks and will proceed to San Diego, Cal., for duty at the aviation school. **Shaw, H. G.**, Major, Medical Corps. Granted leave of absence for one month and nineteen days, upon arrival in the United States. **Strong, F. X.**, Lieutenant, Medical Corps. Granted leave of absence for two months about March 1, 1913; ordered to the Philippine Islands on May 5th. **Weston, H. R.**, First Lieutenant, Medical Reserve Corps. Granted fifteen days' leave of absence before sailing for the Philippine Islands on March 5, 1913. **Whitham, J. D.**, Lieutenant, Medical Corps. Ordered to Fort Howard about February 5th for temporary duty during the absence of Major Hutton.

Births, Marriages, and Deaths.

Married.

Boeckmann—Hill.—In St. Paul, Minn., on Thursday, January 30th, Dr. Egil Boeckmann and Miss Rachel Hill. **Miller—Noell.**—In Danville, Va., on Thursday, January 23d, Dr. Edward Howe Miller and Miss Anne Elizabeth Noell.

Died.

Aldrich.—In Somerville, Mass., on Wednesday, January 29th, Dr. Albert Clinton Aldrich, aged fifty-six years. **Arter.**—In Chicago, on Wednesday, January 22d, Dr. Francis G. Arter, aged seventy-five years. **Balliet.**—In Allentown, Pa., on Tuesday, January 28th, Dr. Louis B. Balliet, aged eighty-one years. **Bassell.**—In Columbus, Ohio, on Thursday, January 23d, Dr. William Benedict Bassell, aged thirty-six years. **Biggers.**—In Temple Hill, Ky., on Tuesday, January 21st, Dr. C. W. Biggers, aged seventy-five years. **Booth.**—In Lake Providence, La., on Thursday, January 23d, Dr. James Fleet Booth. **Davis.**—In Pleasantville, Md., on Sunday, January 19th, Dr. George W. Davis, aged sixty-nine years. **Donaldson.**—In Kansas City, Mo., on Thursday, January 23d, Dr. George Harper Donaldson. **Edmondson.**—In Marion, Va., on Saturday, January 18th, Dr. H. B. Edmondson. **Follweiler.**—In Allentown, Pa., on Saturday, January 25th, Dr. Robert D. E. Follweiler, aged thirty-eight years. **Foust.**—In Salisbury, N. C., on Tuesday, January 21st, Dr. Isaac Henry Foust, aged sixty-four years. **Goodspeed.**—In Worcester, Mass., on Thursday, January 23d, Dr. Helen A. Goodspeed, aged sixty-eight years. **Horwitz.**—In Philadelphia, on Tuesday, January 28th, Dr. Orville Horwitz, aged fifty-two years. **McNally.**—In Central Falls, R. I., on Friday, January 24th, Dr. Thomas Henry McNally. **Massey.**—In Rock Hill, N. C., on Monday, January 20th, Dr. James Everard Massey, Sr., aged sixty-four years. **Morse.**—In Boston, on Thursday, January 30th, Dr. Alfred I. Morse, aged twenty-seven years. **Orme.**—In Atlanta, Ga., on Tuesday, January 28th, Dr. Francis Hodgson Orme, aged seventy-nine years. **Proctor.**—In Philadelphia, on Thursday, January 23d, Dr. Helen Paschall Proctor, aged forty-one years. **Snell.**—In Kalama, Mich., on Sunday, January 26th, Dr. Franklin L. Snell. **Tuttle.**—In New York, on Friday, January 31st, Dr. Percival Tuttle, aged fifty-six years. **Van Pelt.**—In North Rose, N. Y., on Wednesday, January 22d, Dr. J. Van Pelt, aged sixty-five years. **Woodruff.**—In Elmer, N. J., on Saturday, January 18th, Dr. Alpheus B. Woodruff, aged sixty-two years.

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Original Communications.

ASELLIUS AND THE DISCOVERY OF THE LYMPHATIC CIRCULATION.*

BY FREDERICK P. HENRY, A. M., M. D.,
Philadelphia,

Honorary Librarian, College of Physicians; Professor of Medicine,
Woman's Medical College.

This is the third time I have had the honor of addressing a learned society in this city. In 1901 I read a paper before this club on the Life and Writings of Valescus de Tarenta¹ and, in 1904, before the Johns Hopkins Historical Club, I exhibited and reviewed four fifteenth century monographs.² The fact that I am here for the third time proves one of two things or, perhaps, proves them both, to wit, that my two previous attempts were not failures or that it is difficult to find individuals who are willing, I will not say able, to address you on the topics which are the objects of your study. I am sure there are many members of this club who know quite as much about rare medical books as I do; I am equally sure there are some who may know more about them; but my assurance is doubly sure that there is no one who is more interested in them or who loves them more. If I am not well versed in medical bibliography it is not for want of opportunity. For nearly twenty-five years, as honorary librarian of the College of Physicians of Philadelphia, I have seen and handled practically every book that has been added to the great collection of that institution. It is true that a similar statement might be made by an auctioneer who, necessarily, sees and handles the books which he sells. The cases are, however, somewhat different. The auctioneer wants to get rid of his books as rapidly as possible while I, in my official capacity, wish to keep them religiously—and "in keeping of them there is great reward." Take, for example, the book Asellius, *De Lactibus, etc.*, 1627, which I have brought with me this evening. It is not only rare and valuable, but is peculiarly interesting to the student of medical history. During the last few years I have, now and then, taken it out of its case, turned over its leaves, glanced at its quaint illustrations, the *first colored prints ever published*, and then gone my way and, as we say, dismissed it from my mind. But there it remained nevertheless, exerting an occult influence which has

culminated in my presence here to-night. This is one of the rewards, and the chief among them, which has been bestowed upon me by this book.

Interest in the book naturally led to interest in its author. I read the scanty sketches of his life and satisfied myself that he was a man whose memory had not been sufficiently honored. I was quite indignant when I found that but five lines had been allotted to his biography in the last edition of the *Encyclopædia Britannica*. I constituted myself his champion, but it was the championship of a deaf mute. I did not speak of him because I encountered no one who either knew, or cared to know, anything about him. It is no wonder that my interest in Asellius became dormant and that it so continued until it was revived in the following interesting manner. In May, 1911, I read a paper on pseudochylous ascites before the Association of American Physicians, and cited the first recorded case of chylous ascites, which was reported by Poncy, in 1699. When I had concluded, Dr. Abraham Jacobi crossed the room and, seating himself beside me, said that he had not distinctly heard the date of Poncy's case. I repeated the statement that it was reported in 1699. "That is all right," he said, with an air of relief: "you know, of course, that the date of Aselli's book in which he announces the discovery of the chyliferous vessels is 1627." On my return to Philadelphia I got out Aselli's book, and verified the date and again my interest in him was revived. I was delighted with the discovery that there was some one else who, not only was interested in him, but probably knew much more about him than I. I determined to overcome this inferiority, but other and more pressing matters interposed to prevent the accomplishment of this resolution. The subject of Aselli was again relegated to the limbo of the subconscious and there remained until it was again brought to light by the invitation to read a paper before this club. I was given the choice of a subject, but I had no choice. Aselli immediately crossed the threshold of my consciousness and became conspicuously liminal. He demanded the hearing to which he was entitled and I welcomed the opportunity of granting it. I set to work to renew and increase what knowledge I had of him and, at the same time, to investigate the extension of his discovery by Pecquet and Rudbeck.

The records of Aselli's life are meagre in the extreme. He was born in Cremona in 1581 and, according to one of his biographers (Cerioli), of an ancient and patrician family. After a period of preliminary study he went to the University of Pavia and there became the laureate in medicine,

*Read before the Book and Journal Club of the Medical and
Chirurgical Faculty of Maryland, November 19, 1912.

¹Maryland Medical Journal, June, 1901.

²Medical Library and Historical Journal, January, 1905.

surgery, and philosophy. He then settled in Milan, where he taught anatomy privately and practised surgery, and was doubly honored by election to citizenship and by appointment to the position of surgeon in chief (*protochirurgus*) to the royal army. It was in Milan that he discovered the chyliferous vessels or, as he called them, *venæ lacteæ*, on July 23, 1622. In consequence of this discovery, he was elected, in 1624, to the chair of anatomy and surgery in the University of Pavia. Two years later he died at the age of forty-five years. A tablet to his memory was erected in the church of San Pietro Celestino by his devoted friends, Tadino and Settala, who also brought out his book one year after his death.

Aselli's discovery of the lymphatic vessels affords additional proof, if such is wanting, of the value of vivisection to medical science. He was endeavoring to demonstrate the movements of the diaphragm in a dog, and while pushing aside the intestines to bring the muscular partition into view, he observed a number of fine milk white cords ramifying over the bowels and mesentery. At first he took them for nerves but, fortunately, conceived the idea of puncturing them. On seeing a milky fluid escape from the puncture he seems to have been immediately aware of the importance of his discovery, for he tells us, in his own account of it, that, like Archimedes, he triumphantly exclaimed *εὕρηκα!* This would seem to imply that it was not altogether the result of accident. That it was largely so there can be no doubt, but, to my mind, it is one of the best illustrations of the truth that he who seeks finds, although he does not always find that which he is seeking. As in Aselli's case, it may prove to be something much more valuable.

While Aselli and his pupils were examining the lacteals the animal died and the vessels were immediately emptied of their contents so that scarcely a trace of them could be found. On the following day, another dog was opened, but, to the intense disappointment of the experimenter, the milk white vessels were not visible. After two days of brooding over the subject during which, doubtless, both while asleep and awake, there revolved in his mind every circumstance attending the discovery, the cause of the failure of the second experiment occurred to him. The only difference between the conditions of the first and second experiments was that the first animal examined had been recently fed, while the second was opened while fasting. The experiment was repeated with the necessary correction. Another dog was examined during the process of digestion and the milk white lacteals were beautifully manifest. Aselli might well have shouted his view halloo of *εὕρηκα* a second time and with better reason than when he first gave voice to it.

During the brief remainder of his life Aselli devoted himself to the study of the chyliferous vessels, and to us of the present day it seems remarkable that their real destination should have escaped so keen an observer. The fact is that he was heavily handicapped, not by his knowledge, but by his learning which, as a matter of course, was derived from the teachings of the ancients, for whom his respect seems to have been unbounded. It was the

belief in Aselli's time that all the nutritive material derived from the digestive processes passed through the liver. This was the teaching of Galen and the very fact that it was partly true rendered it more difficult to get at the whole truth. Aselli traced the chyliferous vessels to a group of glands at the root of the mesentery which are prominent in dogs and other carnivora and which, before his time, had received the name of pancreas. Since his time, they have been called *pancreas Aselli*. From these conglomerated glands he traced several large vessels to the gateway of the liver (*porta hepatis*), which having entered they lost themselves in the substance of that organ. These vessels were undoubtedly the lymphatics of the liver, for they contained a limpid, slightly pink fluid very different from the milky liquid of the lacteals. This fact is commented upon by Aselli himself. An examination of their valves, for Aselli was acquainted with the valvular structures of the lacteals, might have shown him the true direction of the fluid which they conveyed. The force which caused the current in the lacteals was believed by Aselli to be at least twofold, a *vis a tergo* and a *vis a fronte*, the former being supplied by the movements of the intestine, the latter by a hypothetical suction force of the liver. In addition, he believed that the vessels themselves assisted in the propulsion of their contents. It was to the suction force of the liver that he attributed the emptying of the vessels on the death of the animal.

Aselli's discovery met with a certain amount of opposition, both active and passive. Among his active opponents were the very men who refused to accept the teachings of Harvey concerning the circulation of the blood. Prominent among them were Riolan, Plempius, and Primrose. Strange to say, Harvey joined with them in opposition to the new doctrine, if his refusal to accept it may be so considered. In the last edition of the *Encyclopædia Britannica*, in his article on Harvey, Dr. Pye-Smith makes the following remarks upon this subject:

It has been made a reproach to Harvey that he failed to appreciate the importance of the discoveries of the lacteal and lymphatic vessels by G. Aselli, J. Pecquet, and C. Bartholinus. In three letters on the subject, one to Doctor Morison, of Paris (1652), and two to Doctor Horst, of Darmstadt (1655), a correspondent of Bartholin's, he discussed these observations and shows himself unconvinced of their accuracy. He writes, however, with great moderation and reasonableness and excuses himself from investigating the subject further on the score of the infirmities of age—he was then above seventy-four. The following quotation shows the spirit of these letters: "Laudo equidem summopere Pequeti, aliorumque in indaganda veritate industriam singularem nec dubito quin multa adhuc in Democrite puteo abscondita sint a venturi seculi indefatigabili diligentia expromenda."

This statement of Dr. Pye-Smith is misleading. Harvey was certainly seventy-four years old when he wrote the first of these letters and seventy-seven when he wrote the last, but Aselli's discovery was made in 1622, when Harvey was forty-four years old. Dr. Pye-Smith's article would lead the cursory reader to the conclusion that Harvey was in the seventies at the time of Aselli's discovery. The difference between the ages of Harvey and Aselli was three years. Harvey being born in 1578 and Aselli in 1581. Harvey, far in advance of his time in all matters pertaining to the circulation of the blood,

was certainly behind it in all matters pertaining to the circulation of the chyle and lymph. In praising the industry of Pecquet and others in investigating the truth,—*in indaganda veritate*—Harvey evidently includes Aselli, the greatest of the investigators of the lymphatic system among the "others."

No one has ever disputed with Aselli the honor of his discovery except Aselli himself. He did his best to detract from it by endeavoring to prove that the lacteals were known to the ancients, especially to Herophilus and Erasistratus, the founders of the Alexandrine school of medicine. There are no extant writings of either of these men and we are indebted to Galen for what we know of them. Concerning Herophilus, he tells us that, in addition to the veins proceeding to the liver, he was acquainted with vessels which terminated in glandular bodies. These may have been lymphatic glands. Erasistratus, according to Galen, had described in the abdomen of young sucking kids, vessels which, at one time, contained milk; at another, air. Galen contemptuously dismisses these statements as gross delusions. They were certainly too vague to enable Aselli to acquit himself of the crime of discovering the lacteal vessels.

The lacteals were demonstrated in man in 1628, the subject being a criminal who was examined one hour and a half after his execution.³ They were first depicted in Vesling's *Syntagma Anatomicum*. According to Haller, the first edition of this work is dated 1641; the earliest edition with which G. His was acquainted was dated 1647. The edition in the library of the College of Physicians, edited by Blasius, is dated 1666. It contains on pp. 317 and 349 excellent illustrations of the chyliferous vessels.

PECQUET AND THE DISCOVERY OF THE THORACIC DUCT.

The next important step in the history of the lymphatic circulation was the discovery of the thoracic duct by Johannes Pecquet of Dieppe in 1647, twenty-one years after Aselli's death. At the time of his discovery he was a student at Montpellier and was twenty-five years of age, having been born in 1622. It was also the result of accident, as he himself acknowledges, with the greatest modesty, in the following words: *Munus est fortunæ cum inscio ludentis*—it is the gift of fortune sporting with the ignorant. It occurred in the following manner: He had opened the thoracic cavity of a dog and removed the heart, when his attention was attracted by the outflow of a whitish fluid from the superior vena cava. At first, he supposed that he had ruptured an abscess, but a careful search excluded this possibility. He next found that pressure upon the abdomen increased the flow of the milky fluid. A second experiment led to the discovery of the thoracic duct, which Pecquet at first regarded as a nerve, but determined its true character by means of a ligature, below which the duct swelled from the upward pressure of the fluid within it, the swelling subsiding when the pressure was removed. He traced the duct downward to the receptaculum chyli—his own name for this reservoir—and upward to the subclavian vein. The animal in which Pecquet discovered the duct—a Molossian hound—

had a double duct, such as is often found in man, with communicating branches, which accounts for the term *bivium* which he applies to it. I have consulted Pecquet's original article as printed in the *Messis Aurea* of Hemsterhuys. The treatise contains an illustration of this double duct, but pictures it as emptying by two branches into the right and left subclavian veins. In the course of my investigations of Pecquet's discovery I have found no comment upon this egregious mistake.

Pecquet unlike the brandy which he is said to have consumed in inordinate amount did not improve with age. He was an example of that species of *rara avis*, an intemperate Frenchman. Vigneul de Marville, a gossipy chronicler, relates that, after losing sight of him for several years, he met him in the country at the house of a friend and he intimates that his uncertainty as to Pecquet's identity was removed as soon as he came near enough to perceive the odor of brandy on his breath. Brandy, he says, was the cause of his death: "*l'eau de vie fut pour lui une eau de mort.*"

THE GENERAL LYMPHATIC CIRCULATION.

The honor of discovering the lymphatic vessels has been contested by Jolyff, an Englishman, by Thomas Bartholin, of Denmark, and by Olaus Rudbeck, of Sweden. It would be more nearly correct to say that the title to this honor has been disputed by the adherents of these men, for Jolyff never published anything upon the subject and Bartholin never condescended to engage personally in an argument with Rudbeck, his young and comparatively obscure rival. The honor of discovering the lymphatic vessels undoubtedly belongs to Rudbeck. He first proved that the vessels which Aselli described as conveying the chyle from his so called pancreas to the liver, in reality conveyed fluid in the opposite direction. He acquired this knowledge by the simple process of ligaturing the vessels and watching them swell above the ligature and collapse below it. He was twenty-one years old when he made this observation. He named these ducts the watery ducts of the liver, *ductus hepatici aquosi*. He thought they removed superfluous fluid from the liver and conveyed it to the pancreas, from which it was discharged through the duct of Wirsung. In 1651, independently of Pecquet, he discovered the thoracic duct and the receptaculum chyli, which he called *vesiculum chyli*. It was not until 1652, when he was giving a public demonstration before Queen Christina, that he learned from the physicians in his audience of the previous discovery of the thoracic duct by Pecquet. He subsequently described the lymphatics, which he styles *vasa glandularum serosa*, in the intestines, the spermatic plexus, the lungs, and various other parts of the body. In fact, he practically proved their universal existence and their connection with the lymph glands. It would be futile and wearisome to discuss his contest for priority with Bartholin or, rather, with Bartholin's disciples. It is described in detail by G. His in his admirable dissertation. Suffice it to say that, in the words of Haller, it was a disgraceful quarrel on both sides: "*lis utrinde inciviliter gesta est.*"

I have mentioned Jolyff, an Englishman, as one

³*Messis Aurea* of Hemsterhuys, Leyden, 1654.

for whom a claim to the discovery of the lymphatics has been made. His claim was made by his contemporaries, Wharton, Glisson, and Charleton. Wharton⁴ in his *Adenographia*, London 1656, pp. 97 and 98, states that Jolyff discovered the lymphatics in 1650, and Glisson⁵ declares that Jolyff had shown him these vessels in the liver in 1652, and at the same time informed him that he had found them in nearly every part of the body. If these statements are true and there is no reason to doubt them, Jolyff was acquainted with the lymphatics before the first publication of Rudbeck upon the subject in 1653. Nevertheless, the honor of the discovery will remain with Rudbeck, who gave it to the scientific world, while Jolyff virtually kept it to himself.

In the foregoing pages I have given the main facts concerning the discoveries of the circulation of the chyle and lymph. In some instances, and those the most important, I have had access to the original sources of information. With regard to the controversy between Th. Bartholin and Rudbeck concerning the discovery of the lymphatics, I have accepted, after careful examination, the dicta of others who have had more time and more ability and, I may add, more inclination for such investigations as it demands.

"If a man die shall he live again?" This is the question which has been asked and variously answered from time immemorial. There is one answer to which no one can take exception. He lives, through his works, not only in the memory, but in the very lives of his successors. We, students of medicine, are every day unconsciously influenced by the discoveries of such men as Harvey and Asellius, and it is eminently proper that, now and then, we should become conscious of such influences and pay tribute to their authors.

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114 SOUTH EIGHTEENTH STREET.

FRIEDMANN'S NEW TUBERCULOSIS REMEDY.*

By H. J. ACHARD, M. D.,
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The feature which has struck us most forcibly in regard to the new tuberculosis remedy, introduced by Dr. Franz Friedrich Friedmann, of Berlin, is the newspaper notoriety which it has received. The doctor's claim of having elaborated a positive remedy for the cure of tuberculosis was taken up and published far and near by the newspapers, and was discussed day by day, so that a collection of clippings already fills a fair sized

scrap book. Contrary to their usual custom, the newspapers have, in the great majority of cases, discussed the new "cure" with a certain skepticism which was manifested by a great many "ifs." The press throughout the country warned the public against hoping for too much, but indirectly contradicted and counteracted this policy, which was of itself a wise one, by printing glowing accounts of the favorable results announced by Friedmann. It is true that the adverse or doubtful criticisms of the *Journal of the American Medical Association* and of other medical journals, also doubtful interviews with many physicians have received wide publicity. In some newspapers the doubts that are raised are commended, and in so far as this has been done the press might plead not guilty to the charge of supplying improper reports. Its principal harmful influence lies in the notoriety which it is giving to Friedmann's remedy long before its value has had an opportunity of being vindicated and established; and the harmful influence of the press reports is also manifest in the constant use of the term *cure*, which in English means far more than *Kur* in German. The latter term is used for a course of treatment, or for the means for a course of treatment, without necessarily implying a successful issue, as does our English word.

It need hardly be said that Doctor Friedmann's remedy is not a serum, but a bacterin or vaccine, since it is prepared from tubercle bacilli. If the newspapers insist on printing medical news, they should at least take the trouble to acquire and employ a correct nomenclature. Unfortunately, some of the alleged interviews with Doctor Friedmann are the most manifest and barefaced lies. The famous Mr. William S. Shepard makes him say that his treatment is very simple, that it is a serum, and that one injection usually drives all signs of tuberculosis germs from the system. From London a special cablegram to New York and thence to California, states that Doctor Friedmann said: "No matter what the stage of the illness may be, I will give any patient one or two injections of my serum and six weeks later he will qualify as a strenuous football player." If such balderdash, which the veriest tyro in immunology knows to be false, served up to confiding newspaper readers, is not an improper use of the power of the press, I am greatly mistaken.

All through the newspaper accounts of the remedy one gets the impression that Doctor Friedmann employs a clever press agent or is himself one. His attitude appears to be slightly quackish, and is certainly tinged largely with personal considerations. Being refused unqualified or even preponderating recognition in his own country, he turns a hopeful eye toward the land of dollars, "the land of unlimited possibilities," and is quite willing to have his remedy investigated here, trusting apparently that some kind fate may loosen up the ready dollars to throw into his pocket. On general principles he can hardly be blamed for this, since a man is entitled to the benefits accruing from his brain work, but we are not accustomed to such a procedure, and it is not considered proper among scientific men.

While Friedmann's first refusal to say anything

*I was unable to verify this quotation in the *Adenographia* of 1659 which is the only edition of that work in the library of the College of Physicians.

⁴*Anatomia hepatis*, London, 1654, p. 266.

⁵Address opening the discussion on the subject before the North Shore Branch of the Chicago Medical Society, February 4, 1913.

on the nature of his remedy may have been dictated by wise considerations, and may have been justified, he should have known that he would barely get a hearing unless he gave some positive information. He admitted the origin of his tubercle bacilli (turtle) under pressure, but he refused and still refuses to communicate his method. Although he denies that his tubercle bacilli are originally human, he does not say how he obtained his turtle tubercle bacilli or how he infects the turtles. He denies that he uses the old strain of originally human turtle bacillus with which he worked in Piorowsky's laboratory some years ago. In his repeated assertions that he will give his method to the government for investigation, a peculiar vacillation is manifest, and a holding back that gives a distinctly unpleasant impression.

According to press dispatches, Friedmann sells the rights of his method in Russia and in the British Empire for one million dollars each, and enters into negotiations for a like sum to sell the rights in the United States. This barefaced commercialism, which I admit might be defended on certain grounds, nevertheless leaves a bad taste in the mouth. Friedmann might know that if his remedy were all he maintains for it, not only his own nation, but the entire civilized world would unite to do him honor and to enrich him beyond the most sanguine dreams of gain. His anxiety to sell the rights of his remedy before its value is actually established, implies a doubt on his own part of its efficiency.

In pronouncing this severe criticism on Friedmann's attitude, we must not lose sight of the fact that our information is derived entirely from newspaper accounts, which may or may not be correct. The newspapers themselves do not deny that what they are after is news first, without any particular insistence upon the truth. If the news happens to be true, so much the better; if not, it is news anyway. We may be doing Friedmann an injustice. If so, we shall be willing to apologize.

While it was to be foreseen that after the glowing accounts that came to our country from Berlin, many consumptives would go or send to Berlin for the much vaunted remedy, one might think that physicians would assume a more critical attitude, yet many of our colleagues have shown themselves to be quite as gullible as lay people, and are entirely premature in taking things for granted. We read of physicians selling their automobiles, mortgaging their homes to borrow money to go to Berlin (the pity of it!), either for their own benefit, or in order to get the remedy for their wives, for their dear ones. Others pledge themselves to give the benefit of this new "cure" free to suffering mankind. Verily, it seems as though the lessons of 1890 were forgotten.

Nor is the reaction long in coming. As early as January 25th, a little over two months after the first announcement, what amounts to a flat denial of the value of Friedmann's remedy is published in the papers, and the obverse of the medal is being shown. The newspapers have aroused extravagant hopes and expectations in the most gullible class of people—the consumptives. Now they destroy them ruthlessly and cause untold disappointment and mental suffering and anguish. The

question seems pertinent whether this proceeding is not actually immoral, and we are tempted to ask whether the newspapers consider themselves beyond the restraint of moral precepts and are at liberty to play fast and loose with the happiness of the public.

If we now come to examine Friedmann's report, what do we find? In his original report, which was published in the *Berliner klinische Wochenschrift* for November 18, 1912,¹ he describes at length his clinical results in a great variety of tuberculous cases treated with his remedy, by intramuscular and intravenous injection, sometimes one or the other, sometimes both simultaneously. He asserts that patients show surprising improvement after one or two injections. He injects his bacterin into newborn infants, although it contains living tubercle bacilli, and says that somewhat over one year after this inoculation not the slightest trace of scrofula or tuberculosis is to be found in any of these children.

The account of animal experiments is extremely scant. Friedmann avers that his preparation is innocuous for guineapigs, and that even after years they remain quite healthy. Nevertheless, they are not entirely immune to severe artificial infection; while his untreated animals succumb to this after about 110 days, guineapigs immunized with one injection live an average of 363 days. He passes over this comparatively unfavorable result by declaring airily that, fortunately, conditions are much more favorable in man, since tuberculous infection in human beings is never as severe as artificial infection in guineapigs.

In the discussion before the Berliner medizinische Gesellschaft, which is one of the most searching, most severe, and most highly scientific tribunals before which a medical man can come, Friedmann's clinical results were confirmed by a number of clinicians, although Blaschko and also Heymann showed only indifferent results in cases of skin tuberculosis and lupus. Citron admits that for treatment and for prophylaxis the use of living germs is correct in principle and was adopted by Jenner and Pasteur, but he insists that great care must be exercised as long as the details of Friedmann's method are not known; he referred to Pasteur's experience with chicken cholera vaccine, in which the avirulent virus became virulent and caused destructive epidemics. He says: "As long as we do not know the nature of virulence, as long as we are not able to control virulence, but may be confronted at any time with the fact that an avirulent virus has become virulent for some unknown reason, so long we have all been afraid to employ this principle of living virus in man, however much we may agree in principle with Friedmann, that living virus should be employed."

Citron objects to the introduction of an unknown remedy which contains living virus into children who are not clinically tuberculous, but who give a positive von Pirquet reaction, although he can find an excuse for the administration of such a remedy as a last resort in severe tuberculous cases. He warns against the general use of the remedy until Friedmann has clearly stated of what his ma-

¹See JOURNAL, January 18, 1913, p. 147.

terial consists. He refers to the relatively unfavorable animal experiments, which he calls failures.

Professor Orth reports that the animal experiments did not yield absolutely good results. The immunized animals did not live much longer than the control animals. They all acquired tuberculosis.

Felix Klemperer's discussion, which was largely historical and along general lines, is immensely interesting, but it would lead me too far to repeat it, even in abstract. He does not believe that the curative remedy against tuberculosis has been found, that tuberculosis has been practically eradicated, as was announced by one of the gentlemen in the discussion, but he insists that essential progress has been made. He shows the importance of the suppurative action of tuberculin, even of Friedmann's turtle tubercle bacilli, which had rendered earlier experiments at immunization futile. He asks how Friedmann's remedy has been deprived of this action of producing pus. Klemperer agrees with Citron that prophylactically, i. e., for the vaccination of children, the use of Friedmann's remedy is rather premature.

Goldscheider speaks from the point of view of the practitioner. He asserts that the purely clinical improvement which has been described in the cases treated is not sufficient, and demands documentary and far better proof than has yet been afforded of the actual benefit derived from the remedy.

In the further discussion, in which such men as Wolff-Eisner, Bier, and Goldberg took part, similar reasons were advanced for exercising great care and for waiting. Schwenk denied that a case of renal tuberculosis which Friedmann had declared to be cured had been improved; in fact he said that the disease was still progressive.

When we examine Friedmann's report in detail, we miss first of all the thoroughness and entering into essentials for which Koch's first account of the etiology of tuberculosis has given such a splendid example, and which was followed by other investigators, for instance by Ehrlich in the announcement of his salvarsan. Friedmann's account is not satisfactory and must be characterized as empirical far more than scientific. At the present day it no longer suffices to say that a remedy has cured or can cure tuberculosis. The cure must be established, first by a clinical improvement, which may be temporary only, and which as a matter of fact has been obtained by other remedies even better than could be done by Friedmann, and has been obtained in this country since 1897; then it must be shown that an actual immunity, demonstrable by laboratory tests, by the demonstration of specific antibodies, has been produced, and that this immunity persists for weeks, months, years. It does not appear that Friedmann has made even the simplest serum tests, those for agglutinins, although Koch had shown the way twelve years before and more, and although the behavior of the opsonic curve has been demonstrated conclusively to stand in positive relation to the clinical improvement and to the immunity acquired in the course of treatment.

Friedmann's *experimental* proof is pitifully insufficient to establish his contentions. The best he could show was that his experiment animals lived three or four times longer than the controls after virulent infection, while it has been shown with other remedies that experiment animals, notably guineapigs, absolutely resist a virulent infection to which the controls succumbed in the course of a few months, and that the immunized animals were healthy and free from tuberculosis more than one year after infection.

Although, as pointed out by Citron and other men, the use of living tubercle bacilli is correct in the treatment of tuberculosis in principle, I maintain that the prophylactic use of such material in children and infants is little short of criminal. Friedmann has advanced nothing but his bare assertion that these living tubercle bacilli cannot change in their virulence and become harmful to the children. He can afford no guarantee that he has not infected these children and that eventually they may not acquire a fatal tuberculosis.

In spite of all the objections that may be raised against Friedmann's remedy, or rather against his administration of it at present, and against his incomplete announcement, I am free to admit that there may be, and probably is, a great deal of good in it. We certainly have clinical improvement in a great many cases, which has been confirmed by clinicians and by the physicians in charge. We have the disappearance of physical signs, the gain in weight, the restoration of the working ability, the loss of tubercle bacilli in the sputum, even the loss of a positive tuberculin reaction. The only question is, whether equally good results cannot be obtained with a less questionable, because less potentially dangerous remedy. This has been done.

I have the impression that Friedmann's announcement was hastened somewhat by a report which went to Germany last summer, of some work done by an American physician who did not come before the world in such a theatrical manner and with such an array of clinical cures which demand the proof of time, but whose work showed painstaking scientific research, work that is being confirmed day by day, and that is sure to stand and to solve the problem which Friedmann asserts that he has solved. This work was reported first of all to the Chicago Medical Society last May. It was published in the *Journal of the American Medical Association*, May 18, 1912, in the *Medical Record*, August 31, 1912, and in *Report No. 1* of the von Ruck Research Laboratories. The principal difference between this work and that of Friedmann is that von Ruck does not use living tubercle bacilli; but what might be called the *active principles* of the tubercle bacilli, that is, the different extractivities. Von Ruck's curative remedy, the watery extract of tubercle bacilli, has been before the profession since 1897 and has accomplished fully as good clinical results as Friedmann's remedy, although not in such short periods of time. His most recent remedy, the prophylactic preparation, has kept the experiment animals entirely free from tuberculosis; in fact animals which have been immunized and then infected considerably longer than a year ago, are still alive and in good health, and

in a few that died from accidental causes, not a trace of tuberculosis could be found.

Doctor von Ruck has shown that it is not necessary to inject living tubercle bacilli for the purpose of successful immunization, but that a proper combination of the various extractives will accomplish this purpose with equal efficiency and certainly with far greater safety. He has even succeeded in removing the suppurative action of the tubercle bacilli by a proper balancing of the content in fats, or, perhaps better, by removing the excess of fats and waxes from the tubercle bacilli, which he had found to be responsible for abscess formation after hypodermic injection.

In children who are subjected to prophylactic inoculation with this remedy, which, *nota bene*, entails no risk, for it does not contain living tubercle bacilli, the most surprising clinical improvement was shown, especially a decided improvement in nutrition, a disappearance of all the clinical signs where they had existed, of lung signs, of enlarged lymph glands, of anemia, etc., and what is more significant, the sera of all these children showed a progressive increase in tuberculosis antibodies, agglutinins, amboceptor, opsonins. Further, they showed, and continue to show *lytic power*, the power to dissolve tubercle bacilli *in vitro*.

I wish to call your attention to the difference in the manner in which these two scientists, Doctor Friedmann and Doctor von Ruck, have presented their work, and I want to suggest that the work of the American investigator gives the impression of more thoroughness, of greater care, greater caution, greater conservatism; certainly it is free from all commercialism and evidences of desire for personal gain and advancement, also from all notoriety seeking.

I cannot help but deplore the fact that we pay far more attention to discoveries, assertions, and investigations that are made across the water than to the work done by American physicians. Our own investigators, who are doing just as careful, just as efficient work as is done in the European laboratories and clinics, surely may demand and are entitled to our first interest and commendation. And more, the work of American investigators is entitled to greater consideration abroad than it often receives. For instance, European physicians who investigated the prophylactic treatment of typhoid fever have paid hardly any attention to the work done by Major Russell and other workers in the field, although American physicians, especially army surgeons, have done more than has been done anywhere else in the world to solve this problem.

To come back once more to the newspaper publicity of Doctor Friedmann's remedy: The hope is often expressed that even if Friedmann's remedy does not prove to be a real "cure," the discovery of this will surely come soon. While such an idea may be excused in newspaper writings, physicians should understand that it is hardly possible for one definitely and absolutely curative remedy to heal all cases of tuberculosis. More than in any other disease, patients with tuberculosis present such a variety of differing and varying conditions and problems that it is entirely impossible to consider them alike, although they may be treated according

to like principles. It will always be necessary to differentiate and to individualize, and even as now, some of the so called specific remedies for tuberculosis will be successfully employed in some cases and fail in others, while others which have sometimes failed will again have their field of success. The extermination of the great white plague is not to be hoped for by the discovery of one, or of *the* specific remedy for tuberculosis. It can be expected only after our entire social conditions, especially of the working classes, have been changed and regulated according to correct hygienic, sanitary, and economic principles. Even then the ultimate eradication of the disease will require centuries of time, because it will require many years to counteract the unfavorable influences of environment and heredity.

602 RELIANCE BUILDING.

ACUTE GONOCOCCAL URETHRITIS IN THE MALE.*

BY VICTOR COX PEDERSEN, A. M., M. D.,
New York.

The medical profession has taken about a generation to correct the former complacent vagary as to the unimportance of the nature of gonococcal urethritis, wrongly called gonorrhea, because it is not, as the Greeks supposed, a loss of the sexual element in either sex. The disease is no longer regarded as a simple, severe catarrh of the mucous membrane, with an early mucopurulent and later purulent discharge, but as a vicious, persistent, treacherous, and, in both sexes, more or less invalidating and sterilizing disease. It is known to attack at all ages, both sexes, and persons in every civil condition, not excluding even the clergy.

In contradistinction from the easy going vagary just alluded to, the specialist and authority of to-day is almost in a state of nightmare and remorse as to the ravages of this disease. These ravages are primarily due to the seemingly fixed, lamentable indifference concerning gonococcal invasion by the average family practitioner, and secondarily due to the good natured ignorance and the jocular attitude toward all venereal infection by its various victims, and finally due to the imperfections, limitations, and inexperience in treatment by the very men who meet this disease in the sum total most commonly, namely, the average practitioners. This is obviously true. The general practitioner, who, in a year, sees a dozen or two new cases of gonococcal infection is by no means doing a small venereal practice. The number of such practitioners is so great that it seems likely that the grand total of this disease in their hands, rather than in the hands of the authority who limits his practice to this field, is vastly greater. It is neither unreasonable nor unfair to say that if the reverse was the fact the community would be better off and the disease much more fully controlled.

How deep a respect would the entire community,

*Read by invitation before the Williamsburgh Medical Society of Brooklyn, N. Y., November 11, 1912, as part of a "Symposium on Acute Gonococcal Infection."

lay and professional alike, have for venereal infection if every form of it required confinement to bed, as do typhoid fever, pneumonia, and the exanthemata!

A case in point came into the practice of a colleague, skilled in diseases of the eye. A patient finally reached his office with a simple ocular condition, after having been refused attention by five family physicians, successively, in a single morning. If this patient had been the victim of gonococcal urethritis, the following may safely be said concerning these five practitioners. All five would have accepted the case with the assurance of experts. Complete and far reaching physical examination would have been given by not more than two. Possibly only one of the five would have included examination of the prostate and seminal vesicles. A microscopical diagnosis with differential stain would have been satisfied by one or two at the most, while cultural diagnosis would have been omitted by all five. Last, and perhaps most important, treatment would have been stopped and the patient turned loose on the world with an examination worthy of the name by only one, and a cultural investigation by none, of the five. It is also likely that none would have, or use, a urethroscope or cystoscope in any period of the disease. The treatment of all venereal infection is legitimately the province of those who are working in no other field in medicine. One would expect such specialists to find their limitations greatly restricted in the treatment of pneumonia, for example. It is axiomatic that the converse proposition is true.

A parenthesis should here be added covering the matter of culture, which of the true gonococcus is extremely difficult. The medium must be fresh, selected, prepared and furnished by the laboratory, never chilled after inoculation, but carefully protected in the thermostat. Where clinical and laboratory findings disagree, I rarely hesitate to repeat the latter, and have, consequently, sent as many as five successive tubes before being satisfied. Ayres has recently pointed out that *Micrococcus catarrhalis* will grow at room temperatures, hence one or more control tubes may be advisedly held in the office for comparison. It is now known that this micrococcus is, in its early cultures, Gram positive and in its later cultures, Gram negative, hence only culture will distinguish it from the true gonococcus, whose morphology it duplicates.

Absence of final touches of correct diagnosis and of refined prognosis and of judgment of results is, perhaps, the main factor in the more or less widespread infection of the innocent in wedlock—chiefly wives, but by no means uncommonly, husbands.

I am asked to speak on the subject of acute gonococcal urethritis in the male, which to my mind includes at least the following subdivisions: Management, prevention, abortion, the acute anterior disease without and with complications, the acute posterior condition without and with complications, and finally, the serum and bacterin treatments.

Management is placed first because the instructions enumerated below should be given every patient who applies for advice, whether it is preventive or curative; in other words, whether he thinks he has the disease and wishes to abort it, or whether

he appears during the florid symptoms. My own custom is to give instruction in the form of leaflet in public practice. There is in this nothing new, as most large clinics have, during the past five years, adopted the same policy. In my private work patients are given a reprint of the paper which appeared in *The Long Island Medical Journal*, ii, 511, 1907, under the title of Instruction to Those Having Gonorrhea. It seems self evident that such printed matter should cover explicitly the following points: The nature of the infection, the importance of the disease sociological and personal, the tendency toward penetration, complications and persistence, the treachery of the disease, even in the hands of the best authorities, with the outcome of diseased wives, husbands, and children after supposed cure of the original victim. Particular instruction should be included as to habits during the presence of the disease, especially as to diet, alcohol, tobacco, exercise, and coitus, and precautions also as to self infection by the patient of the eyes and rectum after dressings and washings, and as to the inoculation of the innocent through soiled dressings and surgical or toilet articles.

Many have seen cases of autoinfection of the eyes, but of the rectum much less commonly. I recall the case of a youth who prided himself on being unusually careful and clean in his attention during an acute gonococcal urethritis by using a sponge for frequent bathing of the genitals. Unfortunately and innocently he used the same sponge for bathing his buttocks and anus, which finally resulted in an infection of the anus and rectum. Proctoscopy revealed gonococcal warts, several inches up, numerous, various in size, and disseminated. Surgical removal and lavage cured the patient.

The advantages of such printed instructions in office and clinic scarcely need enumeration, as at least the following will be admitted, without comment: All patients receive orders on the same matters in identical terms, any of which may be explained upon request. This removes any likelihood of omission by the busy practitioner or clinician of important points from patient to patient. It also prevents the excuse that the patient did not remember or understand any particular element in his own care of himself. Thus the bulk of the responsibility is placed where it belongs after the first careful examination and explanation and prescription, namely, with the patient. The foregoing instructions might be regarded as the sociological part of the pamphlet, but the therapeutic side must not be omitted, therefore explanation must be given as to the kind, use, and adjustment of dressings, suspensory bandages, and the like. Most vital is the teaching of how hand injections should be taken. My own little pamphlet seems to cover this ground very well in the following terms:

You must be absolutely sure to obey the following directions while taking the hand injection. If you do as you are herein told, only benefit will follow. If, on the other hand, you do as you please, or experiment on your own account, only you will be responsible.

First, always urinate before taking the injection in order to wash as much pus from the urethra as possible.

Second, never use force in taking the injections, but rather, on the contrary, be as gentle as possible.

Third, never use a syringe that does not work smoothly, because a "kicking" syringe prevents gentleness.

Fourth, never use more than one syringe at one injection, unless specially ordered by the doctor.

Fifth, fill the syringe, hold it tightly against the mouth of the penis, and gently fill the passage until it feels as full as when urine is passing through it. In other words, no pressure greater than Nature's own during the act of urination is either necessary or desirable.

Sixth, hold the injection in for five or ten minutes by the watch (time to be specified by the doctor).

Seventh, after cure never loan the syringe to any one else, but rather destroy it, in order to avoid poisoning anybody with it.

Prevention is our next topic, a term which obviously implies entire protection of the healthy from the virus of the diseased individual in either sex. In our title, the female is omitted. In general, it may be said that, sooner or later, infection occurs if normal intercourse is performed, in the medical sense of complete introduction of the male into the female organ, with ejaculation, and not in the legal sense of mere contact, with or without introduction. The importance of this point is illustrated by the following case: A business men's dinner for the consummation of an important project ended with general intoxication and the suggestion that the company visit a house of prostitution for the night. One of the gentlemen, a suburbanite, had brought his wife into town and left her at a hotel. His part of the sexual debauch consisted in intercourse with one of the inmates, after which he returned to the hotel, slept off part of his liquor, and the following morning had intercourse with his wife. A gonorrhea developed in both husband and wife in about nine days. Both were referred to me by Dr. Frank Terry Brooks, of Greenwich, Conn., at the very earliest moment possible, so that each received complete cure. The woman's case never extended beyond a urethritis and vaginitis, which was a lucky and narrow escape. The man was doubly guilty because his wife was a normal sexual individual, deeply devoted to her husband, and the mother of four children in five years and willing to have still others. More than this, she freely forgave her husband because the matter occurred while he was intoxicated.

On the other hand, infection may occur without complete intercourse, as is illustrated by the following example: A gentleman whose acute urethritis had been reduced to scanty discharge and comparative comfort yielded to the solicitations of his wife for intercourse, but thought he was protecting her by not performing the act except by mere external contact. All this was absolutely against my orders and outside my knowledge, until he confessed that his wife was infected and was showing florid symptoms. She was immediately referred to her physician, Dr. Edward B. Cragin, passed through a severe attack, with tubal involvement, but without operation.

The readiness of infection is well illustrated by the foregoing examples.

Prevention through abnormal intercourse, on the other hand, is quite another matter. Every one is familiar with the various mechanical devices which prevent infection and also so limit the normal enjoyment of the sexual tie as to render them obnoxious and unpopular. The theory, however, that permanent damage ensues upon their use is a mistake. They rather act as does the glove upon the finger of a woman endeavoring to distinguish the

texture of fine goods. While the glove is on, refined tactile sense is decreased, but returns when the glove is removed.

Prevention through antiseptics is common in both sexes. The usual error is that undue strength of solution is used to the damage of the delicate mucous membrane of these parts. I recall the case of a prostitute who shed a complete cast of her vagina through having used a douche of bichloride of mercury of unknown, but excessive, strength. Apparently she argued that if one tablet in the douche bag did good a handful of tablets would do more good. Strange to say, her recovery was complete, without deformity or adhesions, so far as her condition, when last seen, indicated.

Obviously antiseptics must be employed not longer than twelve hours after a suspicious intercourse. In private practice no case of infection has been seen if the following plan was adhered to: Examination for smear and culture test, followed by gentle anterior irrigation twice daily until the laboratory report came in, which usually meant three days of treatment. Most of the armies and navies of the world supply the enlisted men with preventive packets containing an antiseptic injection against urethritis and an ointment against open lesions. The men are courtmartialed and degraded if they become infected, which, with the medical means, seems to stimulate care and success of the plan. In this connection it must be remembered that, formerly, in our navy, there were enough men ill of venereal conditions, at all times, to represent the crew of a second class battleship, hence the grave importance of these precautions.

The obstacles against the author's plan of preventing infection rest with the patients who cannot usually be brought to believe that they may well have a disease which they do not as yet perceive themselves. Also many will not believe that a woman with a pretty face, a beautiful body, and an affectionate manner may be a hotbed of virulent infection—until the disease is unmistakably present.

Abortion is the next topic, which, in this disease, as in pregnancy, means the cutting short of a condition already existent. Statistics as to the success of abortive treatment cannot be complete unless they rest on smear and culture diagnoses and distinguish the desquamative or prepurulent stage, when gonococci in epithelial cells, without pus, are present. Very few patients reach the specialist's office in this stage, for valid reasons. First, sexual and alcoholic debauches are usually combined, and, second, many patients are familiar with the fact that after an alcoholic debauch, without the sexual factor, there is a great deal of irritation, sometimes even a mucous disturbance of the urethra. Hence it follows that the mucous prepurulent irritation of the first twenty-four hours of a gonococcal urethritis is ignored by the vast majority of patients. From this fact it follows that hardly any patients seek advice at this, the ripe time for results of abortive measures. If experience was otherwise, a great deal of venereal infection would be saved from proceeding to the later stages, in both sexes.

The most remarkable case of abortive treatment gone wrong was an attempt by a patient, recently personally reported. The man went to a drugstore

and asked for an antiseptic, flexible bougie for checking his gonorrhea, seemingly in its earliest possible stage. His impulse sprang from the fact that he was engaged to be married and desired to protect his future wife. The druggist gave him a stick of silver nitrate caustic which he introduced into his urethra, totally destroying about five inches of it, which came away as a complete cast. Syphilis, this accident, the resulting stricture and its deformity, and the breaking of his engagement to be married, all served to produce insanity.

The accepted methods of abortion are the swabbing out of the first inch of the urethra with three to five per cent. silver nitrate through a short urethroscopic tube. The reaction which follows is usually readily controlled by standard means. This plan corresponds with swabbing out the vagina of a woman with five to ten per cent. silver nitrate solution. Irrigation of the first three inches of the urethra with a small catheter and hand syringe with any recognized mild antiseptic is the second scheme. In each of these treatments I like to close the urethra with a penile clip or elastic band to prevent extension of the drugs beyond the desired point. Cocaine is a mercy for the caustic. I have also been successful by using the constriction of the urethra and, with a medicine dropper instilling any of the newer silver salts in strong solution, retaining it from ten to twenty minutes, and repeating the application twice or thrice daily for three days. The toilet of the foreskin and glans must be studiously observed to prevent autoinfection of the urethra; exourethral and endourethral abortion must be carried out together.

In this, as in all stages of acute gonococcal inflammation, preference is given to relatively weaker solutions and much longer application.

Treatment of acute anterior gonococcal urethritis without complications is our next subject. This is the stage marked by free, purulent discharge and other signs of well established, more or less severe inflammation. Bacteriologists inform us that there are at least twelve different strains of the gonococcus, naturally varying in virulence. This fact accounts for the wide divergence in the incubation, onset, establishment, course, complications, and prognosis of this disease. The treatment is divided into the expectant and irrigation methods. The first point is, which is the better? Obviously that which, in the long run, leads to least complications. Therefore, in the hands of the general practitioner, the expectant is by far the better, because it does not require premature interference with the inflamed and damaged, delicate mucous membrane. In fact, I am accustomed to limit the irrigation treatment solely to cases of true anterior disease, with no appreciable congestion of the prostate, as determined by at least daily rectal examination of the prostate. Naturally such a person must be a man of means who can afford treatment once or twice a day for two or three weeks. Chetwood's double current apparatus with a large irrigator never higher than the patient's ear, thus furnishing pressure equal to that of the urine during micturition and containing a hot, rather weak, solution, fulfils the requirement.

The armies and navies of the world put the enlist-

ed men to bed during the first two weeks of this disease, with the double purpose of affording quiet and of maintaining absolute control over the individual. This would be ideal in private work also, but so many patients would be betrayed by going to bed without previous obvious sickness that one may very rarely resort to it. In children this treatment is very serviceable, as naturally the parents invariably know of the affliction which commonly arises from unnatural practices on the part of vicious adults. In this connection I recall the case of a nine year old boy who was intentionally infected by a merchant of considerable social and financial standing, but of essential perversion of sexual instinct. The only treatment I could possibly give was rest in bed, urinary diluents, and bacterins. The patient did extremely well, although he improved slowly. The parents became impatient because more was not being done locally for him and finally were unjust enough to take him from my care. It is certainly difficult to please some persons. This boy had not had a single complication or severe symptom.

The indications of the expectant treatment are to dilute and neutralize the urine so that it shall not irritate the inflamed mucous membrane and so that, through its increased quantity, it shall wash away the pus at frequent intervals, but only under natural pressure. It matters very little what alkali is used to neutralize the acidity, potash, soda, lithia, and the like. Caution through frequent uranalyses must be exercised to avoid precipitation of crystals, such as sodium urate, which may, by mechanical irritation, offend the mucosa as much or more than the acidity. The drinking of ordinary water is efficient in diluting and increasing the urine, but the patient had best cease forced water drinking about five hours before going to bed, otherwise the activity of the bladder will disturb rest and provoke chordee.

Chordee is the mark of severe infection and may be very troublesome. Cold applications reduce the congestion and the erection, urination then relieves the bladder whose distention is a basis of the symptom. The tendency toward chordee is avoided by emptying the bladder and bowels just before going to bed, sleeping on the side rather than the back, under light in preference to heavy bedclothing, and by taking the fluid extract of aconite in minimum doses every one or two hours through the day. Last, but not least, the patient must not associate with women, especially one of whom he is fond, in order to avoid the inevitable sexual stimulation incident thereto.

Complications of acute anterior gonococcal urethritis are the next topic and are, fortunately, rather trivial in character. They are avoided by as much general rest as possible, consonant with social and commercial duties, such as most patients must inevitably continue. Extreme edema of the foreskin is one of them, due to lymphostasis and inflammatory swelling. Heat to tolerance in penile or sitting baths, local dressings, and subpreputial irrigations are the indications. I use a silver female catheter mounted in a Valentine irrigator nozzle and reasonably high pressure of potassium permanganate solution to balloon out the foreskin. Spatter is pre-

vented by throwing several thicknesses of gauze over the end of the penis and the catheter in place, which receive the return flow and guide it harmlessly into the sink.

Balanoposthitis is another simple complication, usually accompanied by edema and treated in the same manner. The mechanical removal of the pus, combined with heat, seems to be more important than the actual antiseptics, inasmuch as the continuous flow of pus from the urethra renders the latter at least momentarily futile.

Folliculitis with abscess is more important; if moderate and unobstructive they take care of themselves through the acute stage; if larger and obstructive, puncture and evacuation through the urethra are required. External operation is not advisable, as sinus formation of obstinate character usually follows.

Abscess of the sheath of the penis, usually through lymphangitis, is uncommon and calls for early surgical treatment. Organisms other than the gonococcus, but associated with it, are commonly at the basis of this complication.

Treatment of acute posterior gonococcal urethritis without complications is our next item. Practically all cases of this infection have a slight degree of posterior urethritis, from which the majority proceed to a severe stage. The indications of treatment are, first, a recognition of the anatomy of the part, and, second, of the physiology. The posterior urethra is anatomically the widest part, being bounded behind by the sphincter, and in front by the colliculus or verumontanum. The pouchlike passage between these two points is surrounded by the prostate gland with its innumerable delicate ducts pointing forward for the most part. In the colliculus are situated the vasa deferentia and the rudiments of the womb, the utriculus. From these facts it will be seen that the irrigation treatment under high pressure invites hydraulic damage to these delicate, essential structures and subsequent penetration of the infection, consequently, even in anterior urethritis, as soon as the prostate shows unmistakable congestion, I never use the irrigation treatment, but promptly go over to expectant means until the acute stage subsides. The second indication of treatment is the physiology of the deep urethra. It should be remembered that into this portion the essential sexual glands, the testicles, evacuate, and the auxiliary sexual glands, such as the prostate, likewise. Hence it follows that great respect must be had for the deep urethra, which, during an acute posterior urethritis of gonococcal origin, must be greatly swollen and edematous, exactly as is the anterior urethra in similar circumstances. Consequently one would ordinarily look for the same means to avail in each case. The expectant is, therefore, the method of choice in the management of acute posterior disease, embodying, as it should, studious avoidance of irritation by physical activity, faulty diet, alcoholic beverages, invasion with any means, instrumental or hydraulic (as fluids under pressure undoubtedly constitute one form of instrumental entrance), or by medicinal stimulation, or, finally, by direct and indirect sexual excitement and gratification. In treatment it must be remembered that there is a certain amount of physiological con-

gestion due to the normal activity of the testicles in their secretion of semen and its storage in the seminal vesicles, followed by the congestion of a more or less regular evacuation in emissions or intercourse. Then the disease produces intense congestion. These sources of congestion should not be augmented by any error or violence of treatment, which again repeats in another form the argument in favor of the milder expectant management which leads to far fewer complications than any other method.

Acute posterior gonococcal urethritis occurs in mild, severe, and intense forms. The mild cases persist only a few days, show few symptoms and little inconvenience, except frequency and urgency of urination. Tenesmus, if present at all, is transitory and slight. The severe cases persist from one to two weeks and add greater frequency and urgency of micturition, with distinct tenesmus, day and night. Complications usually arise in many of these patients. Hemorrhage is not uncommon. The intense forms last from two to three weeks and include, with the foregoing symptoms, much pain and more or less hemorrhage. Complications are almost invariable. I recall the case of a young lawyer whose urethritis required three weeks instead of one to develop, but went on to severe hemorrhagic posterior urethritis with unilateral epididymo-orchitis. He passed, not uncommonly, a half wineglassful of blood several times daily for nearly a week. He fully recovered under the methods hereinafter stated, combined with liberal injections of bacterin, married into one of the socially distinguished families of the country, and has since had a baby without infection of his wife, a very satisfactory, blessed outcome.

Mild cases are treated exactly like anterior urethritis; the usual habits of life, mild diet, simple alkalies and diluents, cessation of hand injections, and precautions against the congestion of constipation, sexual excitement, and undue water drinking.

The severe cases require rest in bed and in addition to the foregoing simple details, one may add, according to the patient's choice and comfort, hot or cold applications to the perineum, or irrigations of the rectum.

The intense cases require longer treatment on the same lines as the severe cases. Bacterins may be advisedly added, preferably autogenous in type.

Posterior urethritis which is not declining satisfactorily requires irrigation. The safest method suggests that a small catheter be passed into the bladder with great gentleness, always after urination, to flush away contained pus from the urethra. The bladder is then irrigated to prevent infection, filled with a mild antiseptic solution, beginning with boric acid and ending with reasonable strengths of silver nitrate (one in 20,000 to one in 5,000), or potassium permanganate (one in 10,000 to one in 4,000). The patient then discharges the antiseptic, cleansing the infected region under Nature's own pressure of the urine. Before and during such manipulations, the patient should be taking some efficient urinary antiseptic as a preventive. Another good method of irrigating the deep urethra is with a small catheter and hand syringe, so that the pressure of the fluid may be regulated to a nicety,

to agree with the pressure of the urine. Heat to tolerance is essential in all these steps. For extreme distress, if present, one may give an opium preparation, the choice being codeine, unless inefficient.

I do not believe now, and I have never believed in the essential wisdom of irrigations of the deep urethra under high pressure through the meatus. It is noteworthy that, at least as far as New York authorities are concerned, most of the devotees and enthusiasts of this form of management have abandoned it, for the sole reason that the number of complications was greater than without it. These statements are not to be regarded as assuming that this treatment is the cause of complications *per se*, because not uncommonly one sees complicated cases without any treatment at all. For example, I recall a hospital patient with double involvement of the testicles and incipient abscess of the prostate who had had the disease about two weeks as a first experience and without treatment of any kind.

The irrigation method of treatment appeals to some patients in the light that "the doctor is doing something," inasmuch as judicious observation of symptoms and gentle means of treatment do not similarly attract their attention. The same remark applies to premature application of hand injections, or of office treatment. If, therefore, the patient belongs to this nervous, exacting type, it is, in order to hold him, necessary either to institute the one or the other method of pleasing him; much like the use of a placebo, with the reservation that the disease will not be stirred up. I recently had a lesson in this line. Two brothers were referred to me, one with acute, the other with chronic gonococcal urethritis. After thorough examination of the latter, I instituted office instrumentation and instillations. In about two weeks the acute case was ready for hand injections and began to use them, whereupon his brother wanted to know why I was not doing anything for him by also giving him hand injections. I thought I convinced him that my judgment had best rule and that a hand injection would probably harm rather than benefit him. To my disgust, both brothers left me, doubtless because the patient with the chronic case, who possessed the stronger personality, induced the other to believe that I was trying to "work" them. If, upon his demand, I had given him a hand injection of normal salt solution, both patients would have remained in my care until cured. I shall never again be caught in this same way.

The complications of acute posterior gonococcal urethritis are next for attention, but cover so vast a field that a lengthy paper could be offered on this subject alone, and even on some of the complications by themselves. In order to complete the logical sequence of this paper, however, one should speak of the more prominent complications: Cystourethritis, cystitis, prostatitis, seminal vesiculitis, funiculitis, and epididymoorchitis.

Cystitis is an extension into the bladder of cystourethritis, which, in reality, is only a proximal extension of the urethritis into the direct zone of the sphincter muscle. Each demands about the same treatment as the intense posterior urethritides do, in broad aspect rather than minute details.

Prostatitis represents lateral extension of the in-

fection into the prostate gland and may or may not go on to single or multiple abscesses or one generalized abscess, affecting the gland as a whole, or one lobe. Caution in diagnosis must be great, as it is surprising to see how readily a generalized prostatitis, without abscess, will simulate an abscess. When this point is settled, surgical evacuation is indicated. It was formerly taught that the evacuation should be always made through the urethra. It is now recognized as wiser to evacuate where the greatest prominence presents; thus the surgical rule of attacking an abscess where it seems about to point is followed, and also the danger of a urethroprostatic sinus is avoided. Prostatitis without abscess formation indicates anodynes, rectal irrigation, and the various methods assigned for severe posterior disease. Gentle, thorough massage, regularly done, as soon as decline appears, is of great value in many cases, and should be tried.

Seminal vesiculitis, funiculitis, and epididymoorchitis are so closely related that they should be regarded together. The infection travels from the colliculus at the ejaculatory duct proximally along the vas deferens into the vesicle, epididymis, and testicle. Bodily and local rest are urgently needed, hot or cold local applications, anodynes, and the other treatment of intense posterior disease are indicated. Open operation is rarely, if ever, necessary in the acute degrees of these three complications. It finds an application, if any, in severe phlegmon of the seminal vesicle. In chronic stages, however, the indication is otherwise, but we are not concerned with chronic conditions in this paper.

One drug should be called to attention which I have found of value in allaying congestion and irritation, namely, the fluid extract of aconite, prescribed for intelligent patients every one to two hours, for unintelligent patients every three to four hours, in doses of one minim. The interval is doubled as soon as the physiological signs appear, namely, tingling of the sensory nerve endings in the lips, tongue, throat, and digits, perspiration, and a feeling of relaxation. It is surprising to see how many intelligent patients will describe improvements in the symptoms after a half day of this treatment. I usually limit unintelligent patients to a total of six to eight minims in twenty-four hours.

The serum and bacterin treatments are the last element of this paper. Unfortunately bacteriologists have not been quite as successful in the preparation of these products as they have been with those related to other organisms. This seems to be due to the fact that there are at least twelve different strains of the gonococcus recognized, which renders slight likelihood of finding a stock bacterin which meets the given infection to the best advantage. Mixed bacterins, containing all the strains, may, with time, be found to have met this obstacle. On the other hand, the wisest plan seems to be a trial of autogenous bacterins, which, although often difficult to obtain, are usually prepared in most laboratories within a week or ten days.

The serum seems available in the acute stages, while the gonococci are numerous and active, but the bacterins appear to be indicated for combating the absorptive conditions of the disease, in the chronic and possibly subacute periods. When one

preparation seems to have failed, the other should be tried, serum or bacterin, as the case may be. I have lately been using larger doses, especially of the bacterin, with apparently better results. If time bears out this observation, it will be analogous to that in the case of diphtheria, namely, that the larger doses of antitoxine succeed when the smaller ones fail.

In this connection I recall the case of a man with double, chronic, relapsing seminal vesiculitis, so severe as almost to constitute an acute attack during each relapse. He preferred to postpone Fuller's operation of double seminal vesiculotomy. I therefore began to give him gluteal, intramuscular injections of autogenous bacterin, 400 million organisms at a time, at first every other day, then twice a week, and latterly once a week. Up to the present time the man has received about forty injections. His prostate, vesicles and testicles have all returned virtually to normal and no relapse has been even suggested by symptoms. I purpose exploring his deep urethra with the urethroscope very shortly. For this reason I can make no note of findings now.

I have endeavored to touch upon the indications of acute urethritis in the matter of treatment from the standpoint of anatomical, physiological, pathological, and bacteriological data rather than from the data of mere lists of drugs or formulas available. This seems to have been the best plan of approaching an old subject because, if one carries in mind clearly what is going on in a definite part of the urethra and its annexa during acute gonococcal infection and its complications, the selection of the drugs or of the means of treatment is relatively easy. One rule, however, should be followed, that of observation, gentleness, and conservatism. "When in doubt do nothing," is a very safe axiom in gonococcal infection.

45 WEST NINTH STREET.

MULTIPLE PROFESSIONAL CRAMPS IN A PSYCHASTHENIC.

Psychoanalysis and Treatment.

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The history which follows shows and explains the origin of writer's cramp, which, like that of all truly occupational dyscinesias, is psychological.

Although, on account of marked scrupulosity and anxiety, the patient was regarded as a psychasthenic and the cramps were interpreted as tics, yet she presented many symptoms distinctly hysterical in mechanism. The proneness to suggestions of medical source on the part of so many individuals is seen, and the inconveniences of such suggestions are strikingly revealed. Their tenacity in this case should furnish a warning to medical men against the danger of giving to patients false notions regarding disease, their bodies, and minds. Finally, the relative unimportance of the sexual factor in the genesis and cure of her disabilities is

maintained in the analysis and supported by the success of the procedures employed in treatment.

The importance of an understanding of psychopathology for the treatment of such patients (shown by the previous failures of skilful physical therapy in this case) is not diminished by the need also for careful management of the bodily functions, in order to give the highest efficiency to the instrument, the brain, which carries out the trying psychomotor discipline required for the reeducation of such persons.

CASE. F. S., single woman, aged twenty-nine years, was referred, April 10, 1910, by Dr. John Dunlop after the failure of orthopedics and massage to improve an incapacity to write, apparently due to a painful stiffness and cramp of the shoulder and wrist of two years' duration. Several months in the country had also failed to remedy the cramp, although she had gained ten pounds in weight and became much stronger.

Physical examination revealed no organic disease. She was left handed, as was her brother's daughter of two years. The muscles were strong and respiratory capacity was ample; and in spite of hypotonia, there was no impairment of movement, either in extent or force. Moreover, contractions could be maintained for thirty seconds without fatigue.

But in the act of writing, the wrist stiffened, the forefinger and thumb tightened up on the pen, the hand trembled, and she complained of severe pain in the wrist and between the first and second metacarpal bones. There was not the decided deformity of attitude so often seen in cases of professional cramp: indeed the hand was held in a fairly good writing position, except for a rather too great extension and radial adduction of the wrist. She declared that she was prevented from writing rather by the pain than by the tremor or stiffness.

She did not have the great difficulty of voluntarily relaxing the limbs which I have found in so many cases of professional cramp. It was only in the right shoulder and arm that there was some lack of perfect freedom when passive movements were imparted. There was, however, at first, some uncertainty in performing directed tensions and relaxations of the lower limbs. But I could not satisfy myself that this was not due to embarrassment and imperfect comprehension of what was desired.

The deep reflexes, especially in the lower limbs, were very active, and there was a false clonus. The muscular tonus, especially of the arms, was poor. She had cold and clammy extremities and there was a slight tremor. There was a dry eczema in the left axilla. Sensibility was normal.

She had always been much constipated, with a capricious appetite, which had latterly been ravenous. Every few weeks she had had a severe bilious attack, which pulled her down for a week. She overcame the disability by her will. At school she weighed 150 pounds, which weight fell to 110 pounds at the time of the singer's cramp (see later) until she was twenty-four years old. She was then about 130 pounds in weight.

Much of the previous history was ascertained only after psychoanalysis at various times. As a girl, she was solitary in tastes, and did not care for games. The neighbors' children did not appeal to her, and she stayed much with her mother, her sister being too young to be a playmate. When nine years old, she had scarlet fever, and since then had not had much vitality, always ailing, easily tired, and readily contracting infections. Both heat and cold tried her much, and she perspired readily, even when not heated. The hands often stung, burned, and ached, and seemed to swell, and the veins stood out when she was cold. When she was excited, the hands reddened. Edema of the eyelids came quickly during fatigue. But there was no history of epistaxis nor angioneurotic edema. There had been no pain in the body, back, or sides. This was remarkable in view of the neurastheniform aspect of the patient and her great fatigableness, along with the paresthesia in the hands. She menstruated normally at fifteen years. After a fall at the age of twelve she wore a plaster on the back for three years. In view of the later history,

the significance of this procedure might be thought psychopathological, indicating an unusual suggestibility for the notion of bodily disease. At eighteen years the catamenia disappeared for six months, and were afterward scanty, when she was said to be anemic. Sexual desire did not appear till nineteen years; although when fifteen she had been properly enlightened by her mother. So sensitive was she to ridicule that a girl who laughed at her at the age of nine years on account of her belief that babies were brought by the doctor still incurred her hatred. She was disgusted with the girl's explanation, and refused to believe it, and when her mother confirmed her disillusionment, she felt that she had been deceived, and was very distressed, just as when she learned that there was really no Santa Claus.¹

Among the characteristics discovered in anamnesis were the following: Her diffidence about her singing was increased by the fear that it would make people believe that she was "pushing," as she had seen many do. At one time, her loss of confidence was so great that even the making of her clothing would unnerve her, so that when any thought was required the task seemed like a mountain. She had told her mother that she felt different to others, as she never felt like acting as she saw others do. Analysis showed that this was because she was too self-conscious to speak, for fear of attracting the attention of others, especially strangers. Lately, she had ceased taking communion, because dissatisfied with herself, religion, and everything. It seemed wrong that her late fiancé, who was completely selfish, should be happily married and well, while she was poor and sick. She was ashamed of her apostasy and kept it to herself. She had never been spiritually minded, but always altruistic. A cousin attributed her misfortune to her having danced with men; but she herself rejected this notion, as she never did anything she was ashamed of with men. She had been brought up to be very particular and reliable;² so that she would become irritable and excited if things were not exactly right. Hence, she had always kept a good deal to herself or stayed with her mother. She was rather taciturn, not caring to talk while working. She was not fond of day dreaming. She thought she had not made what she should of life. What she meant was that she had had to curtail her musical ambitions.

Psychologically she was overconscientious and inclined to melancholy. She said that her torture of mind was hardly describable.³ She was very diffident, and hardly felt like acting as she saw others do. This she could not particularize, except that she feared to speak when with others for fear of attracting attention. She was ambitious and desired to excel in music, but was handicapped by her poverty on account of her father's loss of work for several years. Thus she could not have a proper piano, and had great difficulty paying for her singing lessons. She felt that she must make good; for she believed herself worthy of a better environment than her poverty allowed.

THE PROFESSIONAL CRAMPS.

It was this state of mind which led to her first incapacity. She had sung in a choir for some time, and appeared at a concert, but had no trouble with her voice, although she was studying with a master who, she now believes, employed an injurious method. After a concert at which she made her

first public appearance, she received an anonymous letter suggesting that she would have looked better had two inches been removed from the neck of her corsage. This might be thought indicative of a purely sexual complex; but it must be considered in conjunction with the long standing fear of appearing forward, and her general lack of confidence and fear of ridicule and touchiness of disposition, all of them due to the consciousness of her own inadequacy to what would be required for the fulfillment of her ambitions. She never found out the author, and it greatly added to her self consciousness, as she feared that any of her friends might know of the insult, and every time she sang she thought of it with a feeling of immodesty. In consequence, a painful contraction of the pharyngeal muscles occurred, especially when she sang a high note or a solo, as these drew attention to her. Then the tongue began to stiffen at the same time and a severe cramping pain would occur in the throat.

The cessation of menstruation she believed to be a sign of consumption, which she much dreaded, as she had been at the death bed from that disease of her only girl friend; and one of her cousins and three aunts had died from it. She knew that tuberculosis could affect the throat, and was indeed told that her trouble might be consumption brought on by the strain of singing while she was physically unfit. Eventually, the cramp would occur even upon talking, especially when several people were present and she was tired. This episode, like that of the plaster upon the back, illustrates the mechanism of a hysterical notion. Although I have spoken of the patient as a psychasthenic, I am not at all sure that the pathogenesis of her condition is not that typical of hysteria, as defined by Babinski, viz., "producible by suggestion" (NEW YORK MEDICAL JOURNAL, January 22, 1910. See also *Journal of the American Medical Association*, December 21, 1912.)

Five years ago, she ceased singing, as two years of treatment by a laryngologist failed to improve her; but some time later she recommenced singing in the choir, although she could not manage a solo. In the choir she met the leading tenor, whose voice she greatly admired. They became engaged; but although intensely fond of his person, her better judgment acquiesced in her parents' advice not to marry him, because of his careless habits, intemperance, and irresponsible behavior. After four years she gave him up, but the strain of doing so was very great. She had always suppressed her feelings with him, for she feared to succumb to his advances; and her feeling of right and wrong would not allow her to do so; and she is proud of succeeding, for she believes few girls could have withstood. This episode shows tremendous power of resisting suggestions of a moral order, and is typical of the scrupulousness of the psychasthenic character. He made her life miserable by trying to take advantage of her; though he had fine feelings otherwise. Her endeavor to appear indifferent after the rupture wore on her; but she eventually threw off what she calls an obsession of her life. Sexual desire was excited only when with him; it never occurred in his absence, even in dreams.

¹Sensitiveness of this kind is very common I find. Such cases illustrate the need of proper instruction at an early age in the hygiene of the reproductive organs to prevent the unhappiness caused by the deceptions contingent upon the prudery which is so common.

²Hyperconscientious training is very apt to produce a reticent solitariness in a child; for the little one is unable to reconcile the happy-go-lucky compromises of companions with the training of her elders. I find this the most frequent of all the sources of psychasthenia. Its effect in children is very clearly brought out in the cases I have recently published (*American Journal of the Medical Sciences*, December, 1912).

³Anxiety is the dominant feeling in states of this kind. It is often accompanied by many of the physiological reactions of fear, of which it is merely a variant. I find it always contingent upon the consciousness explicit or implicit of an insurmountable situation, that is to say, psychological; although I have carefully looked for the mechanism of direct physical transference from a state of "pleasure—desire" which certain psychopathologists term "libido." The relation of the emotion to the idea which caused it has been set forth by me in the *Journal of Abnormal Psychology*, June, 1910.

ONSET OF THE WRITING CRAMP.

During the grief of this rupture she had been working at book keeping in a railroad office, where great accuracy was needed, as one error would upset the work of a room full of clerks. Two years ago, she had a severe attack of grippe followed by insomnia, for which many drugs were given. The practice of giving narcotics of any kind for nervous disturbances without a proper psychological examination requires strong condemnation. Not only does it injure the patient and prevent recovery for a long time, but it casts discredit upon the whole profession for the want of understanding of the individual doctor, and gives food for the gibes of the devotees of Christian Science and other enemies of scientific medicine. She found half a trional powder would stupefy her for two days. On returning to work, she had great difficulty in finishing the day. She felt that this position must be kept, as she could no longer, by singing, earn the money she needed to support herself, now that her engagement was broken. Against the increasing difficulty of writing her daily quota, she struggled hard; but anxiety only added to the physical burden, and she finally succumbed after trying various methods of holding her pen in the effort to write. This process occupied about six months, and ended in a tremor so violent that she had to be fed. She attributed her incapacity to a broken muscle in the shoulder, and hoped that a month's rest would enable her to return to work. This belief is largely the fruit of medical opinion, again showing the need for psychopathological skill in a variety of conditions common in medical practice.

In the course of the investigation, the dreams were explored, but this line of inquiry was soon abandoned, as the analysis of the dreams which were recalled did not reveal additional complexes of significance germane to the psychogenesis of the writer's cramp.

It appeared that some little time before entering the railroad office, she had been subjected to a violent shock, through the suicide of a sister-in-law with whom she had been staying, and with whom she had not got on very well, believing herself somewhat unfairly treated by her. It is possible that this increased the predisposition to writer's cramp by exalting the nervous anxiety with which she entered the office.

PROGRESS OF THE CASE.

After a month's treatment by a succulent diet, constipation was greatly improved. This symptom, so common in "nervous" cases, I find almost invariably removed when a proper diet is persevered with. The essentials are an abundance of whole cereal and succulent fruits and vegetables and a diminution of the proteids, which have generally been given in excess in the belief that the patient's nervous system needs more pabulum, an incorrect procedure because starvation is less frequent than toxicosis as a cause of impaired neural function. (See Diet in Nervous Disorders, NEW YORK MEDICAL JOURNAL, October 7, 1911.) I absolutely forbid purgatives of any kind in these cases; but permit an enema on the third day if required. Of

course, proper exercises greatly assist the proper diet. Writing was possible without constraint when made large and round, but an attempt to lessen the size failed. The next menstruation was very painful, and the girl became sleepless; also she became very nervous after sewing. She was advised to relax; and thyroid extract, one grain twice daily, was tried. For some days after this, she was in a torpid state; but could not sleep properly. This I interpret as one of her periodic bilious attacks, not yet compensated by the diet; these eventually disappeared. The animal extracts were prescribed in the belief that her internal secretions might be somewhat exhausted by the long standing emotional stresses. Epinephrine was added to the prescription. She blamed herself for being in this torpor by letting her disappointment prey on her mind; but she declared that she was now quite indifferent to her fiancé, and disgusted with herself for not having thrown it off.

The reflexes, which had diminished for a time, were now much increased. Great variability in the extent and rapidity of response of the deep reflexes was shown at different examinations. Exaggeration seemed to be in proportion to ill health. But the false clonus found in the early examination never returned; and on the whole there was a progressive diminution of excitability.

After this crisis, she made better progress, being able to relax her wrist and to write the alphabet firmly in letters about half an inch large; but her throat still ached sometimes when singing. The fact that she takes responsibility in the house weighs upon her; and her sister, who does not do so, is so much happier that she is inclined to blame her parents for encouraging her ambition. It is by such mechanisms that the beginnings of paranoia arise. The desire to blame others is then a psychological defense against chronic discontent at oneself. She has, however, been sleeping better, having walked much, and the constipation has greatly diminished, thanks to the fruit in the diet; but her mind is still preoccupied, because she is not working, and does not feel able to sit at a desk from eight to five o'clock.

Improvement continued in spite of the unpleasantness of a rupture in the choir where she sang. She showed much acerbity, blaming the director's bad management. Although she is much improved, she is very pessimistic, and thinks she may have a tapeworm, as she is so ravenous (another instance of a hysterical idea). But she had succeeded in sceptically rebutting the argument of certain of her friends who wished her to attempt to apply Christian Science to her disorder. This showed that her reeducation was really taking hold. Upon her insistence, I allowed her doctor to give male fern for the suspected tapeworm; this satisfied her of its absence. Her constipation was now cured; but, as she believes capacity to write is unattainable, she is very unhappy.

After the first eight weeks I did not see her so often, and she unfortunately relapsed on account of frequent discussions of her state by well meaning friends; so that toward the end of July she was firmly impressed with the idea that there was a deformity in the hand and shoulders. I disproved this

to her with some difficulty, as her attitude was distinctly negativistic. But after this she fell back upon the notion that she needed something to make her food assimilate. A rediscussion of her digestive difficulties showed her that they were caused by her emotions. The reeducation in such cases often must be far reaching; as no point is too small to cause inquietude; and an understanding must be given. This is very different from the crude suggestion of reassurance, with false minimizing of the symptoms with which a great many doctors confound psychotherapy, the aim of which is not to hoodwink the patient into the belief that he is not ill, such as do the Christian Scientists by a metaphysical denial of symptoms. Psychotherapy aims, first, to teach the patient why he thinks himself ill, or how he has made himself ill by psychological mechanisms. These the physician explains. Secondly, psychotherapy educates away from the habits which are formed during the pathological phase, and provides a means of building up anew the normal actions which constitute healthy habits. It restores the useless to usefulness in a way which tends to prevent relapse. The patient's equipment is really increased; whereas the false psychotherapist gives to the patient only a crutch by which he can hobble along, but which does not afford means of intelligent adaptation to new difficulties. She had to admit that she had improved, for excitement and mental effort no longer caused dyspepsia, though it still induced constipation. She had gained in strength.

But in spite of all reasoning she would feel her hand contract sometimes, even when not writing. I decided, therefore, that she had not a real grasp of the principles I had been trying to inculcate. One is apt to fail to carry the patient along in understanding unless the temptation to go rapidly without sounding the patient all the way is not succumbed to. Accordingly, I recapitulated them systematically, with great care, and wrote out a summary for her to take home and study. After her next visit, I kept this, and asked her to write to me an account of the mechanism of her condition as she understood it. From this account (which follows) it can be seen that she had not even yet transcended the physical explanation, as she referred her condition to disease of the brain cells, failing entirely to appreciate that her disability was psychological; that is, a disharmony of acts arising in ideas. It was not that the machine was broken or worn, but that the wrong letters were brought into operation. It would be possible to overcome the abnormal acts derived from diseased brain cells by any amount of studied indifference or exercise of selfwill, which would serve in a psychological situation.

So the following letter was written to her, and she was asked to cease entirely the practice of writing while studying and trying to grasp the propositions contained in my letter. To do this the better, she was urged to leave home and be absent from habitual influences for a few weeks, during which she was to engage in abundant exercise in the open air. After a few days, she might begin to learn to write with the left hand. When she had clearly grasped the principles which I had ex-

plained, she might begin to practise with the right hand. Preceding this, I had seen one of her friends, who gave me the following account:

F. S. is selfish, and perhaps ashamed of her mother, who has indulged and spoiled her sister. They forget that F. S. is ill and do not excuse her peevishness. The shame is due to her mother's ambition for her. She has always had to help her family; and her sister, a girl of nineteen or twenty, has not had to do so, and she considers this unfair.

She is snobbish, and her mother is worse. She does not want to have to depend upon relatives when her parents die. She does not practise writing much, nor exercise. (Why?) "I did not see much use." She does not grasp the psychological idea, and was disappointed not to find a tapeworm. People imply that she is a failure because she is not married at twenty-eight, and cast up her support to her.

She wishes very much to be engaged or married; and if she is not engaged soon, she thinks there will be no hope for her.

To pursue the analysis, I gave her a paragraph in a newspaper to read about the cutting of his wife's throat by a man who thought it a disgrace for her to work. She said: "It is like my thoughts, and it pains me; such queer ideas."

It was then she was directed to dictate as accurately as she could my explanation of how and why her arm went astray in writing and other acts. She said she could not, making many excuses; and when asked to consult her friend with regard to suitable work, she made the excuse that she was going away down the river next month, and it was not worth while beginning. She was much exercised over what proved upon examination to be the long tendon of the left biceps slipping over its ridge. She kept always referring to the physical aspect of her case. On August 5th, she could not comprehend why her hand still contracted when no mental stress was apparent. I explained again that it was habit, just like the character of any one's walk, gestures, and so on.

She said: "Why do my hands tremble when I seem so well to-day?" So I made her hold them out, and a rapid oscillation of the right hand was shown. I made her count twenty while looking at me; it ceased. I made her look at my hand spread steadily before her; her trembling again ceased. Then I explained its mental nature, and that a tremor of organic origin could not be stopped like this. She at last was convinced.

The patient's own explanation of the mechanism of her affection was as follows: "An abnormal condition of the mind produces certain phenomenal results. Practically the same brain cells are in action when writing or sewing. Through certain physical conditions, these particular cells have become diseased, and instead of performing their functions properly, they create abnormal acts. When this condition has become chronic, it can only be overcome by exercising self will and by studied indifference to all matters." My reply to this was embodied in a psychotherapeutic letter, as follows:

Your account shows, as I half expected, that you have by no means an adequate conception of your own condition. As you require that, in order to attain perfect recovery of health and usefulness, I try to place it before you now as simply and clearly as possible.

First, it is an error to say that your "brain cells have become diseased." There is no disease of your cells:

there is a disorder only of the harmony of action among them in writing, etc. This originated in the extraordinary efforts to accomplish much during a time of fatigue and mental distress. It was the difficulty of doing this which caused the unusual attitude of the hand, which arose from conscious effort to perform what was beyond your staying power. The tightening of the muscles was "mental." The habit of wrong writing was thus engendered and it is this which now persists as an automatism. That is to say, when you are not paying attention, the hand of itself is guided by the mind unconsciously into these perverted positions.

But even when attending, there is an inclination to fall into the very position you desire to avoid. This is partly due to its habitualness, and partly to the natural tendency of many persons to perform the very act they most wish to avoid; the familiar example is that of the cyclist to collide with the obstruction he sees in the road. By practice, this tendency is soon overcome.

So you see that the abnormal acts are not the result of disease of the cells; but are merely bad habits to be overcome in the same way as those of the learning of the piano or of any act needing mechanical dexterity.

It was only after this that rapid improvement occurred; and the writing, though a little large, became perfectly normal. Perfect ease, however, was not attained, although she did a good deal of clerical work intermittently, and was ready to take a position demanding it continuously, knowing that if the right hand failed the left hand could take its place.

After this almost complete recovery, the patient ceased attendance; but she saw me from time to time, and maintained the hygienic life that she had been taught. As a result, she was, one year ago, in better physical condition than she had been in for years, and was able to walk long distances and to do hard housework without fatigue; whereas formerly she was tired out by walking a few squares or by any hard work. But that the restoration of her physical health was not the cause of her partial recovery from writing cramp is proved by the relapse of the latter, in spite of continued improvement of her physique. This relapse is due to circumstances which have compelled the cessation of the reeducative training. She writes so much worse than she did six months ago that she has quite given up practising for the present; but when circumstances permit, the lessons will be resumed, and I believe that the capacity will be restored.

The patient has now learned dactylography and is in a position of trust, which she much enjoys. Her health gives her no trouble, although she does no actual writing with the right hand. We have recommended psychomotor discipline. Her morbid fear is not altogether gone, however, for she fears that in the future her arm may refuse to work the typewriter. But her success has hitherto reassured her.

INTERPRETATION OF THIS CASE.

Both the incapacity to sing and to write are alike explicable as tic. (For the mechanism see *Journal of Abnormal Psychology*, June, 1912.) F. S. could not sing because the relaxation of the pharyngeal muscles needed for good tone production was interfered with by the emotional contraction of them, which resulted from dwelling upon the shame created by the anonymous letter. The struggle between her shame in singing and her desire and need to sing accentuated the difficulty still more.

The fact that cramp occurred later, quite apart

from professional use of the voice, is paralleled by the case of E. L. and by her own eventual incapacity to feed herself as a result of a professional cramp and tremor of the right arm. This shows that the mechanism of these cramps is not strictly occupational at all. The mechanism of the writing cramp consisted in the desperate effort to perform work while she was in an unfit state of health. The act of writing became impossible because no muscles relaxed to allow of the necessary interplay. The intense contraction, at first purposive, became associated with the attitude of writing. Its mechanism was almost automatic; so that when the cortex was stimulated by the need to write, the innervation inevitable was that which caused a cramp instead of the coordinate act of attempted writing.

The pain, both in the throat and the upper limb, was due to the intensity and prolongation of muscular contractions; it is that of cramp, and is familiar enough. In one of my cases of occupational dyskinesia, correction of a bad posture quickly relieved a pain which had been called hysterical by several physicians without proper analysis. It again is paralleled by the pain in the shoulder of E. L.⁴ The residual and almost constant pain is partly of the kind described as stiffness experienced after severe and prolonged exercise. It may be partly psychological; but this was not determined, as I wished to withdraw the patient's attention from the pain as much as possible, for the reason which follows:

A PRELIMINARY TO TREATMENT.

The greatest difficulty in the treatment of these cases is the patient's firm belief that the part incriminated is itself diseased. So long as this is believed, rational cure is impossible; but the belief is very difficult to dislodge, for so many medical men have acted in conformity therewith, and the true explanation involves a line of thought so unfamiliar that it requires time for assimilation. This subjects it to the danger of interference by meddling friends or other advisers. Thus it is essential that the patient should visit the doctor frequently at the beginning of the treatment, and if possible the more intelligent friends should be interviewed and their cooperation invoked.

TREATMENT.

The treatment is described in detail in the memoirs cited, and also in the *Journal of Abnormal Psychology* for July, 1912.

1705 N STREET, N. W.

THE RELATION OF SCOLIOSIS TO SCHOOL SEATING.

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(Concluded from page 278.)

In order to learn what types of school furniture were being used in the cities of the United States,

⁴See *Journal für Psychologie und Neurologie* (Tübingen, 1912), where are considered in detail several other cases as regards pathogenesis or treatment, also *NEW YORK MEDICAL JOURNAL*, October 7, 1911, and *American Medicine*, July, 1912.

I addressed an inquiry to the school departments of all cities over 25,000 inhabitants as shown by the United States Census of 1910, asking for information as to their school furniture and the total enrollment of pupils. Some gave me the information I wanted; some sent me much information I did not want and none that I did; and from many I had no replies. In all, I had replies from about thirty-eight per cent. of the 230 odd school departments I addressed. This information I have tabulated and it may be studied in the following table:

TABLE.							
	Total population 1910	School children	Types of desks				
Altcona, Pa.....	52,127	9,000	¾ single, ¼ double. No note.	Johnstown, Pa....	55,482	7,986	No definite information supplied.
Aurora, Ill.....	29,807	6,200	No uniformity; all kinds. "All that have been put in in last 15 years have been adjustable."	Kansas City, Mo..	248,381	73,750	No further information supplied.
Albany, N. Y....	100,253	17,583	No note. No information supplied.	Kalamazoo, Mich.	39,437	6,352	Most of desks and chairs of old rigid type; few adjustable. See cut No. 12.
Allentown, Pa....	51,913	7,500	American automatic. See cut Fig. 12.	Louisville, Ky....	223,928	?	"Rapidly displacing old fashioned double desk with modern type of single desk."
Brockton, Mass...	56,878	8,063	Adjustable. No information as to type.	Lynn, Mass.....	89,336	11,500	Equipping all new buildings with adjustable desks and chairs. Kenney Bros. & Wolkins. See cut No. 17.
Brookline, Mass...	27,792	4,298	½ adjustable. No other information supplied.	Lawrence, Mass...	85,892	11,500	About 2,500 seats and desks in public schools adjustable. Chandler desks and chairs. See cut No. 17.
Baltimore, Md...	558,485	66,659	Some double and some single. "Adjustable desks no longer purchased."	Lowell, Mass.....	106,294	12,700	"Seats are half dozen kinds: furniture obtained in recent years is adjustable, old is not. Adjustable is better, but not so greatly superior as has been claimed."
Bayonne, N. J...	55,545		No information supplied.	Muskogee, Okla..	25,278	?	Adjustable from the Am. Seating Co. Probably similar to Chandler type.
Berkeley, Cal....	40,434	6,500	Solid single desk, 5 sizes; adjustable and nonadjustable. 18 adjustable and 27 non-adjustable in each room.	Madison, Wis....	25,531	3,993	Ideal Desk, Am. Seating Co. Probably like Chandler type. Purchase nothing now but adjustable desks and chairs. In some schools still use old single stationary desk and chair.
Bridgeport, Conn..	102,054	14,559	Am. Seating Co. Stationary desks. See cut, Figs. 13 and 14.	Malden, Mass....	44,404	7,000	Am. Seating Co. "Boston type." Adjustable. See cut No. 19.
Binghamton, N. Y.	48,443	7,600	Am. Seating Co. Stationary. See cut, Figs. 13 and 14.	Manchester, N. H.	70,063	5,966	All adjustable. Am. Seating Co. and Kenney Bros. & Wolkins. Chandler type best. See cut No. 17.
Cincinnati, Ohio...	364,463	?	Adjustable desk and seat. Seat detached from desk. Seat of settee form, not chair. Various styles.	Meriden, Conn...	27,265	4,377	"Non-adjustable being replaced by adjustable. Kenney Bros. & Wolkins." See cut No. 16.
Council Bluffs, Ia.	29,292	?	"Regular Standard." "Probably Chandler or Haywood type."	Montgomery, Ala.	38,136	4,500	Schools to a great extent furnished with individual adjustable desks and seats. Types: Chandler, Ideal, and Automatic Triumph Single Desk. See cuts.
Colorado Springs, Col.	29,078	5,400	Am. Seating Co.'s Nos. 1, 2, 3, 4, and 5. No other information supplied. See cut. Probably "Chandler adjustable."	McKeesport, Pa...	42,694	?	No information supplied.
Chicago, Ill.....	2,185,283	343,354	Am. Seating Co. "Most of our school furniture made by our repair department."	Nashua, N. H....	26,005	?	Haywood adjustable. See cut No. 17.
Columbia, S. C....	26,319	4,000	Two or three sizes to a room. "Have never used adjustable desks in our schools."	Niagara Falls, N. Y.	30,445	4,502	Many adjustable every room. Paragon Desk, Am. Seating Co.
Cleveland, Ohio...	560,663	74,233	Installing adjustable seats and desks of own pattern since 1906. See cut, Nos. 10 and 11.	New Bedford, Mass.	96,652	11,820	Chandler and Kenney Bros. & Wolkins, adjustable.
Columbus, Ohio...	181,548	25,207	25% adjustable sufficient. Last two rows in each room so arranged.	Nashville, Tenn...	110,364	?	Am. Seating Co. Probably adjustable. No other information supplied.
Danville, Ill.....	27,871	3,004	Single open desks with hinge seats. Graded to suit size of child. Evidently non-adjustable.	New Britain, Conn.	43,916	7,000	Adjustable. Chandler and Haywood.
Decatur, Ill.....	31,140	6,500	Columbia-American Seat. Co. 1/6 adjustable in each room. Probably similar to usual settee desk as used in Columbus and Bridgeport.	Newton, Mass....	30,806	6,906	"All modern buildings and nearly all the older buildings equipped with Chandler adjustable desks and chairs."
Davenport, Ia....	43,028	8,000	Ordinary school desks, 2 or 3 sizes. High Schools, Columbia chair, Am. Seating Co. 1 school, sanitary steel pedestal desk, Am. Seating Co. See cut, Fig. 15.	Newark, N. J....	347,469	?	Some stationary desks and chairs. Standard single combination desk and seat. Some adjustable made by Am. Seating Co. and New Jersey School-Church Furniture Co. 1/6 of quantity of desks to a schoolroom are adjustable. Adjustable desks and chairs. Kenney Bros. & Wolkins. See cut No. 17.
Des Moines, Ia...	86,368	16,000+	No adjustable seats.	New Rochelle, N. Y.	28,867	?	School houses furnished mainly with combination seat and desk by Buffalo School Furniture Co. (Am. Seating Co.) See cut No. 12. "In nearly every room there is one row of adjustable seats and desks."
Detroit, Mich....	465,766	81,927	"Rubber tipped tables with chairs to suit each individual will soon replace desks and chairs."—A prophecy. No other information supplied.	New Haven, Conn.	133,605	23,152	Am. Seating Co., Triumph type. Chandler regular and Boston School Desk. All adjustable. See cuts 12 and 17.
Denver, Col.....	213,381	?	"No uniform seating plan. Many of rooms have one row of adjustable seats, feeling that eight adjustable seats will accommodate all the 'unusual children.'"	Oakland, Cal....	150,174	22,500	
Elizabeth, N. J...	73,409	10,829	Single adjustable desks largely. New Jersey School-Church Furniture Co.				
East Orange, N. J.	34,371	6,000	Regular stock school furniture, adjustable. Different manufacturers: Am. School Seating, Haywood Bros., Kenney Bros. & Wolkins. See cuts.				

	Total population 1910	School children	Types of desks		Total population 1910	School children	Types of desks
Perth Amboy, N. J.	32,121	6,000	Adjustable and non-adjustable. State that they "desire the non-adjustable."	Tacoma, Wash...	83,743	13,984	Use "Wabash," "Triumph," "Automatic," Andrews.
Passaic, N. J....	54,773	12,000	Most of the desks in use are the New Jersey School-Church Co.'s. In each room about $\frac{3}{4}$ are adjustable; one new building, all adjustable. Kenney Bros. & Wolkins.	Topeka, Kan.....	43,684	7,677	Adjustable desk and chair. Similar to Triumph. See cut Nos. 13 and 14.
Pasadena, Cal....	30,291	5,722	Few adjustable, but most rooms furnished with ordinary desks and chairs. Tables and chairs (kitchen) in special study rooms.	Waltham, Mass...	27,834	5,000	Ordinary chair and desk. Kenney Bros. & Wolkins. Am. Seating Co. Not all adjustable.
Pueblo, Col.....	44,395	9,000	Only Grand Rapids desks in entire city. (Probably like Triumph type.) See Fig. Nos. 13 and 14.	Waterbury, Conn.	73,141	12,895	For past fifteen years purchased nothing but adjustable furniture. Still have some nonadjustable. Chandler desks and Kenney Bros. & Wolkins' furniture.
Portland, Ore....	207,214	30,000	Triumph desks. Each school-room is furnished partly with nonadjustable and partly with adjustable desks. See cut 13 and 14.	Worcester, Mass..	145,986	23,070	Am. Seating Co. Several types. No information relative to percentage of adjustable and nonadjustable.
Philadelphia, Pa.,	1,549,008	192,000	In all elementary schools conventional type of desk. One or two rows of adjustable desks are placed in each room, and one or two rows of fixed but different sized desks in each room.	Washington, D. C..	331,069	60,384	Only adjustable desks and chairs; single. Bobrick schoolroom furniture by Am. Seating Co., New Jersey School-Church Co., Kenney Bros. & Wolkins.
Providence, R. I..	224,326	30,000	Most schoolrooms are seated with adjustable desks or have a number of rows of adjustable desks; gradually replacing stationary with adjustable types.	Watertown, N. Y.	26,730	5,000	Chandler adjustable for past ten years. Some nonadjustable. See cut No. 17.
Rochester, N. Y..	218,149	?	No information obtained.	York, Pa.....	44,750	7,000	Single adjustable in High School. No adjustable desks in grade schools. Some single and some double.
Roanoke, Va.....	34,874	?	Have a large number of double desks. Believes that flat topped tables with ordinary chairs more restful and sanitary than the patent desk. Tried them for a year.				
Rockford, Ill....	45,401	7,885	Just begun to use adjustable desks. Am. Seating Co. s Steel Pedestal and Steel Automatic. (See cut 12 and 15.) Have about 500.				
Richmond, Va....	127,628	18,741	Schools with exception of two rooms are equipped with regular school desks and chairs. Have some double desks. Newer buildings are equipped with adjustable desks and chairs.				
Somerville, Mass..	77,236	11,871	Adjustable desks in nearly all the buildings.				
Syracuse, N. Y...	137,249	?	Chairs and desks purchased from State Prison Commission. "Most unsatisfactory."				
Schenectady, N. Y.	72,826	?	Ninety per cent. of elementary schools equipped with adjustable furniture. Three types: 1. Bench seat with up and down adjustment; 2. bench seat with plus and minus adjustment; 3. the chair seat with four adjustments. (Boston Seat.)				
South Bend, Ind..	53,684	8,070	Regular desks by Am. Seating and Grand Rapid Furniture Co. Very few adjustable seats in graded schools.				
So. Omaha, Neb..	26,259	5,000	Ordinary school desks. Convinced of need of adjustable desks and seats, but have none.				
St. Paul, Minn...	214,744	38,905	Attempt to adjust chair and desk to pupil. Only one row of adjustable desks to a room; remainder are stationary, furnished by Cleveland Seating Co.				
San Antonio, Tex.	96,614	19,769	Desks of various patterns and makes. Replacing some with steel desks with straight backs and seats.				
Seattle, Wash....	237,194	30,000+	One third seats adjustable to a room. Use Triumph Desk. See cut Nos. 13 and 14.				
San Francisco, Cal.	416,912	43,979	No other information obtained.				
Spokane, Wash...	104,402	17,022	Triumph Desk.				
St. Louis, Mo....	687,029	84,073	15,000 using adjustable seat and desk as shown in blueprint cut supplied. Similar to desk and chair shown in cuts 13 and 14.				
Terre Haute, Ind.	58,157	?	State law requires twenty per cent. of all new installations shall be adjustable. Use ordinary rigid, one pupil desk and same in adjustable. No chairs except in kindergarten.				

This table shows the following points of interest:

1. The almost total uniformity of the cities toward the installation of adjustable furniture.
2. The use of the single desk and chair, and the



FIG. 9.—Miss Emma G. Sebring's school chair with adjustable lumbosacral support, favoring correct posture.

abolition of the old double desks with settees and benches.

3. The large number of cities and schools content with but a small percentage of their total equipment adjustable.

4. The uniformity of the two types of adjustable furniture, namely: (A) The separate chair and desk; (B) the automatic with settee seat.

5. The inadequacy of the first type [No. 4 (A)]

of chair back, and the absolutely faulty design of [No. 4 (B)], which cannot but cause bad attitudes and which must be anything but comfortable. The seats slope too deeply backward, and the backs very



FIG. 10.—Cleveland chair and desk.



FIG. 11.—Chair and desk used in Flint, Mich.

considerably beside giving support in the wrong places.

In order that the reader may become familiar with some of the common types of school furniture in use, I will show the cuts of the different types



FIG. 12.—Stationary desk. Adjustable desks have an up and down adjustment of about four inches; used in Columbus, Ohio.

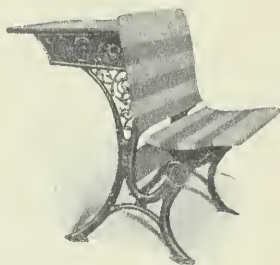


FIG. 13.—Automatic deep box desk with lifting lid. Type A, nonadjustable.

and give their names and good and bad characteristics.

The Sebring Chair. (Fig. 9.) A chair recently devised by Miss Emma G. Sebring, principal of St. Agatha's School, New York city. Designed for the purpose of at least inviting or encouraging, if not compelling, a correct sitting posture. It is maintained that the only comfortable position in this chair is the correct sitting position, and



FIG. 14.—New adjustable desk, Type B, used in Oakland, Cal.; Spokane, Wash.; Seattle, Wash.; Binghamton, N. Y.; Bridgeport, Conn.; Montgomery, Ala.; New ark, N. J.; New Rochelle, N. Y., and New Haven, Conn.

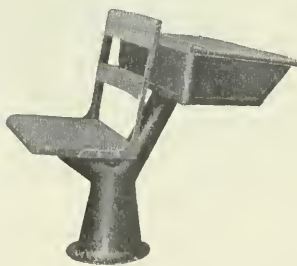


FIG. 15.—Steel pedestal desk, used in Davenport, Iowa; Rockford, Ill., and St. Louis, Mo.

that when this position is taken the chair is perfectly comfortable.

Comment: This is not a bad chair. There are several things about it, however, that could be improved, namely: The seat appears to be too wide; the lack of a fixed dis-

tance from the desk; it would be better to have it fixed to the floor on a single standard at the proper relations to the pupil and desk, for any movable chair, no matter how good in itself, predisposes to faulty attitudes, due to its movability; the narrowness of the back and the straight lower cross piece, which should be curved forward.

Adjustable seats and desks. There are practically two types of adjustable seats and desks on the market to-day, which are generally used. These are:

1. The so called automatic desk and chair on a single frame or pedestal, with both chair and desk adjustable, or only the chair adjustable.

2. The separate single desk and chair, both adjustable to height, but not to distance.

Of Type 1, the desk and chair as used by the Cleveland, Ohio, schools is about the best. Of Type 2, the so called Chandler seat and desk is the most commonly used. Neither, however, is satisfactory or perfect. (See Figs. 10 and 11.) The desk is adjustable for height only. The chair is adjustable for height and distance, but seat and back are too big. There is no room for hips or clothes. The curves of back are constant. They are generally too big and clumsy and likely to fit a child poorly.

Fig. 12 is the type used in Columbus, Richmond, Kalamazoo, Topeka, St. Louis, Allentown, and Rockford, Illinois. The objections generally are the same as to the desks shown in Figs. 10 and 11, a too great backward slope to seat and chair back. In St. Louis the chair back is flat and slopes backward slightly with a good chair seat, all however fixed on a single pedestal, and nonadjustable except in various sizes.

Figs. 13 and 14 show another style of Type 1, with the same general objections. The list of cities where it is used is appended.

There is one other class which is not used to any great extent, namely, the single pedestal desk, as used in St. Louis and developed or invented there by the school department. It resembles strongly the other desks and chairs except that in the St. Louis type the chair back is solid and flat. It is, however, not altogether satisfactory



FIG. 17.—So called Chandler desk and chair.

in view of the fact that no part of it is adjustable and so has to be installed in various sizes (Fig. 15).

Another type of the single pedestal desk may be seen in Fig. 16.

One of the most popular and common styles of Type 2 is the so called Chandler desk and chair (Fig. 17), both adjustable to height but not distance. The desk is a good

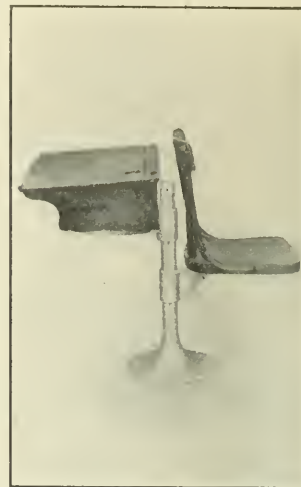


FIG. 16.—Type of pedestal desk used in Meriden, Conn.

one, as is also the chair seat. The chair back, however, is bad in that it is too high and offers no support to the back where it is needed; neither is there room enough left for the buttocks. If the chair were adjusted to the proper height for the pupil, and set at a uniform plus distance of about one inch, the combination would not be a bad one except for the chair back.

Other desks and chairs of very similar styles are used in many cities, as follows: Colorado Springs, Col.; Fitchburg, Mass.; Lawrence, Mass.; Manchester, N. H.; Montgomery, Ala.; New Britain, Conn.; Newton, Mass.; Waretown, N. Y.; Nashua, N. H.; Lynn, Mass., and New Rochelle, N. Y.

There is a recording gauge supplied by some manufacturers, so that the teacher or janitor may measure the pupils as they sit at the desks and so acquire data by which the desk and chair may subsequently be properly adjusted to each child. It is simple and readily used.

Fig. 18 represents a school chair, the seat of which is all right, but the back is bad beyond all conception. Why backs are made to slope and curve so, only the manufacturers can tell. It cannot be from any adequate knowledge of the normal curves of the spine nor the pupils' needs (Fig. 18).

Fig. 19 represents the so called Boston chair devised by Dr. F. J. Cotton, with an ordinary adjustable desk. For position of child at desk, see Fig. 8. This chair is used



FIG. 18.—A very bad type of chair.

almost wholly in the Boston schools, but for various reasons previously mentioned has not been installed to any great extent elsewhere. It is by all odds the best chair on the market to-day for all school needs.

Fig. 20 represents a good desk and chair, except that the chair back could easily be modified in two ways to make it an admirable outfit: First, the back should be cut down to make it lower; and, second, the middle or lower cross bar should be convex forward instead of backward but still maintaining its concavity from side to side, and adjustable in a vertical direction. It should also be made considerably wider, say at least six inches. The outfit then would offer a good practical desk and chair with few, if any, harmful points and many good ones about it. It need not necessarily be made of steel, which is noisy; but steel affords durability and reasonable cleanliness, both of which are desirable. The uprights of the back are wide, leaving ample room for clothes and buttocks; the seat is good; and with the minor changes in the back, it would be a good chair.

This about covers the ground of school seating to-day in the larger American cities of which I have had information. That similar conditions exist in other like communities from which I have not heard is to be supposed. To say that conditions are ideal would be wrong; but apparently school departments are alive to the needs of the pupils, but so far are dependent on the school furniture companies for their supplies. That these supplies are not yet perfect must be admitted, but time, study, and experience will tend to the working out of better models than are now in use, provided the expense of the installation is not prohibitive. School departments generally take the bid of the lowest bidder, provided the patterns of the furniture are about alike. The chair shown in Fig. 20, with a few simple changes, would be most satisfactory, and the changes would involve slight, if

any, additional expense to the manufacturer. Desks and chairs adjustable in all directions are not necessary, involve considerable care, and are used only to advantage in schools for cripples.

CONCLUSIONS.

1. All chairs and desks should be adjustable to height.
2. Chairs and desks adjustable in other directions are not necessary.
3. A slight plus distance of about one inch is a



FIG. 19.—Chandler adjustable desk with the Boston chair.

good standard to go by in the relation of the desk to the chair seat.

4. The desk top should slope twelve to fifteen degrees, and should be wide enough to allow the whole arm to rest on it in writing.

5. The chair seat should be flat with rounded corners and edges; or slightly concave to fit the buttocks.

6. The chair back should be wide with but two



FIG. 20.—Adjustable desk and chair of steel.

outside uprights; no higher than the lower part of the shoulder blades, with an adjustable cross bar,

convex forward and concave from side to side, to fit the lumbar curve.

7. From a sanitary point of view, single standard desks and chairs are good, provided the other qualifications are not lacking.

8. Benches, chairs of the kitchen backed type, movable chairs, and settee chairs are distinctly bad.

9. Physical education departments are essential in connection with all school departments.

10. Pupils should have frequent rest and exercise periods.

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234 MARLBOROUGH STREET.

THE ROUTINE DISINFECTION OF SCHOOLS.*

By J. T. AINSLIE WALKER, F. R. S. M., F. C. S.,
New York.

Among the numerous problems confronting educationists, none perhaps is more insistent or more difficult of solution than that of the prevention of infectious disease. Viewed from any standpoint—hygienic, educational, or financial—school epidemics are deplorable; yet, as is evidenced by reports from all parts of the country of the closure of schools owing to infectious outbreaks among the scholars, all the remedies and all the palliatives hitherto brought to bear against them have done little more than touch the fringe of the evil.

The most common school diseases are measles, diphtheria, scarlet fever, and whooping cough, while the available data tend to show that tuberculosis may exist among school children to a much greater extent than is commonly believed. The facts that the first four of these diseases are generally infectious before they can be diagnosed, and that both scarlet fever and diphtheria remain so after the patient has apparently recovered, greatly increase the difficulty of preventing outbreaks among school children and of confining within moderate limits such outbreaks when they have occurred. Pathologists are agreed that each of these diseases is caused by a specific germ. The diphtheria bacillus and the tubercle bacillus have been isolated, studied, and definitely referred to their respective diseases. Although the bacteriology of scarlet fever, measles, and whooping cough has not yet disclosed the complete life history of their specific organisms, the analogies between the various

stages of these maladies and the corresponding stages of those in which the specific organism has been identified, are so complete that we are justified in assuming that the causal agent in each case is a microorganism. This being so, it will be admitted on all hands that the one intelligent method of preventing these diseases is the timely destruction of the causal agent. I would go even further and say that in all cases in which the specific germ has not yet been isolated, but in which various pus cocci appear as the causes of purulent affections of throat, nose and ear, in sequelæ of measles, scarlet fever, etc., the destruction of these germs should be carefully secured.

In the course of his evidence before the consultative committee upon the school attendance of children below the age of five, Doctor Newsholme, medical officer to the English Local Government Board, said: "Infectious diseases are caught in the streets only with great difficulty, and this may be described as retail infection, as against the wholesale infection of the schools."¹ Sir Shirley Murphy, medical officer to the London County Council, in a paper communicated to the second International Congress on School Hygiene, points out that school attendance concerns the general health, for it means an increase of infectious disease.² Dr. Henry Kenwood, Chadwick professor of hygiene in the University of London, in a paper on *The Disinfection of School Premises*,³ says: "The statistical evidence in support of school attendance being responsible for the spread of infection is overwhelming. The incidence of most of the infectious diseases is upon those of school age; school children, therefore, represent the most inflammable material in the community upon which the spark of infection may alight. If, then, we collect and concentrate that material day by day within the narrow compass of school premises, the risks of the spread of infection must be at a maximum on such premises. It must also be admitted that the condition of overcrowding, which demonstrably favors the spread of disease in the general community, comes into operation in an exaggerated form in our classrooms. The foregoing circumstances *must* combine to make such school classrooms exceptionally favorable centres for the transmission of disease."

In this connection the following extracts from a paper entitled *The Control of Certain Infectious Diseases Among School Children*, by Dr. Leslie Kingsford, school medical officer of Liverpool, published in the *Medical Officer* for May 25, 1912, will be read with interest:

Inquiries made during the years 1909 and 1910 elicited the somewhat surprising information that in only 1.5 per cent. of the school cases was there a history of a recent previous case in the house. Consequently, where there is a susceptible school child in the family, it is found in practically every instance that this child is the first to contract the disease and is the one chiefly responsible for handing it on to the younger members of the family who do not attend school. . . . The investigation into the cases of whooping cough occurring during 1910 showed that previous cases at the homes were discovered in only twenty-

*Read at the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., September 24, 1912.

¹Report of Committee, p. 78.

²Lancet, August 10, 1907, p. 406.

³School World, September, 1908.

seven instances, or 0.8 per cent. of all cases, so that in this disease also home infection is of little account with respect to the infection of school children.

The case for routine disinfection is clearly and succinctly stated by Professor Kenwood in the paper referred to above:

No one who is conversant with all the facts will dispute the contention that the periodical disinfection of school premises is an important branch of school hygiene which is often culpably neglected. A systematic disinfection of school premises is, with rare exceptions, performed only as a consequence of the epidemic prevalence of infectious disease among the scholars, and even then the methods adopted are not always those which the more recent scientific work has demonstrated to be the most effective. Yet the facts which indicate the necessity for this precaution, as a routine practice, are of a very striking and convincing nature. . . . Missed, early, or mild cases spread much infection in school classrooms; and frequent disinfection is an easily practicable means of reducing their potency for evil. In addition to these mild cases of infection, there may be "carrier cases," namely, children who are passive carriers of infection while not themselves affected in any way by the germs they harbor in their throats or in their noses, etc. In some school outbreaks of diphtheria, the "carrier cases" in a class from which several sufferers have previously been removed have been found to be far more numerous than the actual sufferers; but while in good health and fully capable of benefiting from schooling, they may disseminate virulent germs upon the other scholars and the desks, floors, books, etc., of the classroom, when they cough, sneeze, recite, or sing. Flügge and others have demonstrated that the germs may thus be sprayed into the atmosphere for several feet from the individual. The infection of scarlet fever, diphtheria, measles, and whooping cough from such insidious sources, remaining unrecognized in periods when the class attendance is good, may light up a considerable measure of school infection. But the plea for routine disinfection of school premises does not end with the case in reference to common infectious diseases; there are cogent grounds for adopting the practice as a serviceable precaution against the spread of consumption and certain disease producing organisms on skin, hair, and clothes, which are known sometimes to constitute a part of classroom dirt and dust. . . . It is indeed surprising that so little should be done in the face of the recognized frequency of classroom infection and the consequent epidemic prevalence of disease, and in the face of the evidence that is gradually accumulating of the valuable results accruing from the daily disinfection of school premises.

The Scotch Education Department, in a memorandum entitled *The Cleansing and Disinfecting of Schools*, has expressed its views as follows: "The 'close smell' so familiar in the schoolroom is due partly to the subtle organic impurities of the air breathed out by the children, partly to the decomposition of organic dirt on the children's bodies or in the room. Such decomposition is normally caused by microbes. Hence, to cleanse a schoolroom properly, it is necessary to destroy the germ life, as well as to remove the visible dirt. This is why periodic disinfection is advisable, *even when no known infectious disease has been present.*"

To multiply opinions in support of systematic disinfection of schoolroom floors, would be an easy matter, but it is unnecessary.

We are probably all agreed as to the presence in most schools of a certain proportion of children in the infectious stages of one or other of the diseases already mentioned. Such children cannot fail to diffuse infectious material, and that that material, if allowed to accumulate on the floors, to become mingled with the dust, and to be inhaled by the

children, must give rise to fresh cases of the disease is a proposition which should be evident to all unbiased minds.

Let it be granted that the major part of school infection is due to direct contact; there still remains that proportion which is due to the inhalation of bacilliferous dust. Under existing conditions it is impossible to avoid infection by the former means; it is, however, quite possible to avoid infection by the latter. This is why the routine disinfection of schoolroom floors should be regarded as an important item in every system of school hygiene.

Acceptance of this argument leads naturally to consideration of the method of disinfection to be employed. This, I am strongly of opinion, should take the form of the liquid spray, which is preferable to gaseous disinfection for two reasons: 1. Because the liquid disinfectant insures actual contact with the infected matter; and, 2, because the liquid disinfectant tends to prevent dust—the common vehicle of infection—from rising into the air. In the words of Dr. Leslie Mackenzie, medical officer to the Local Government Board for Scotland, "formerly when infectious disease broke out in a school, a pound or two of sulphur was burnt in a basin standing in water, the windows, chimneys, and other crevices having been first stuffed up. The place remained closed for a day or two and was then supposed to be disinfected. This primitive method is still followed in many places and probably it still satisfies many people. I prefer the simpler, quicker, and more effective method of spraying the walls, floors, desks, and furnishings with a spray pump. This is the quickest method of allaying the dust; and I know of no better preliminary to effective cleansing."

It is unnecessary to point out that unless the disinfectant employed be efficient, routine disinfection can be nothing more than a waste of time and money. Aerial disinfection or fumigation is still used in some places in this country in spite of the fact that it has been repeatedly condemned by international congresses and scientific workers generally. Modern research has demonstrated that a better control can be obtained by more direct measures against the organisms of disease and the envelope of dirt by which they are habitually surrounded and conveyed, and this is why the liquid spray is now most generally employed.

To avoid the objectionable odor inseparable from the use of certain disinfectants of low efficiency (necessitating proportionately low dilutions), I would advocate the use of one of the modern high testing disinfectants in a dilution equivalent to one part pure carbolic acid in twenty-five parts of water—say one with a Rideal-Walker coefficient of 20, the dilution of which, equivalent to 1:25 carbolic acid would be 1:500. Taking the cost of such a preparation at \$1.50 a gallon, a superficial area of 10,000 square feet could be disinfected daily for a week at a cost of approximately forty cents.

When school is over for the day, the floor of each classroom should be moistened with this solution by means of the ordinary sprinkling can with a fine rose, and swept in the usual manner while still

damp. The desks and seats should be dusted with a cloth sprinkled with the same solution. Dry dusting and sweeping should on no account be permitted; they merely displace the bacilliferous dust, which after floating in the air for a time, settles again on the floors and desks. Once a week the walls to a height of six or seven feet from the ground should be moistened with the same preparation by means of a spraying machine; seats, desks, hat and clothes pegs should be treated in the same manner, particular attention being paid to the last named, while care should also be taken that the tops of the cupboards and other inaccessible places where dust may collect, are thoroughly wetted with the solution. Every quarter the spraying operations should be extended to include all parts of the walls and ceiling.

The routine disinfection of schools as a systematic preventive measure was first seriously considered in Great Britain in 1907. In his presidential address at that year's Congress of the British Medical Association, Dr. Henry Davey said, in reference to tuberculosis, "the only way actually to prevent the disease is by a perfect system of school hygiene, physical and mental, and by a careful system of disinfection and sanitation." But what probably did more than anything else to secure adherents to the process was the issue by the Scotch Education Department of the memorandum to which allusion has already been made. During the four and a half years which have elapsed since that time, routine disinfection has been adopted by hundreds of education authorities.

If further argument in favor of routine school disinfection be required, it may be found in the fact that *the evil effects of breathing bacilliferous dust cannot be gauged solely by actual absence through illness*. Many of the minor ailments so contracted may be too mild to warrant absence from school or to call for immediate treatment, while being serious enough to lower the vitality of the child to such an extent as to affect its receptive capacity during school hours. Children are legally enforced to attend school and it surely follows that they should be allowed to do so without encountering any danger which is avoidable by ordinary measures of human precaution.

The position may be summarized as follows: The presence of a certain proportion of infectious children is admittedly unavoidable. These infectious children must diffuse a certain amount of infective material, the removal of which by means of frequent and thorough washing of classrooms and cloakrooms is, on the ground of expense, impossible, or is at least so regarded by the education authorities; the daily sprinkling of the floors with a disinfectant solution offers an inexpensive and easy method of minimizing the harmful effects of that material during the intervals between cleansing. Viewed in this light—not as a *panacea* or as a *substitute for cleansing*—it is difficult to understand why the benefits to be derived from this process should not appeal more generally to those responsible for the management of our public schools.

WHITEHALL BUILDING.

ETHER, HOT OR COLD?

By CLIFFORD R. HERVEY, M. D.,
Oswego, N. Y.

The possibility or impossibility of administering inhalant anesthetics warm is a question capable of simple solution. Certainly, final judgment should not rest upon experiments with instruments not adapted to produce the desired result, nor should the merits of the principle, if established as practicable, fail of recognition because of conclusions based upon such researches.

The end result of efforts to transmit these gases heated depends upon a number of factors. Let us confine ourselves to ether as typical of them all. In common with all gases it diffuses with great rapidity, and with consequent rapid loss of heat. Distance of transmission and rapidity of flow therefore influence fundamentally the temperature of delivery. For this reason it would be impossible to retain the heat of ether vapor if it is passed through a rebreathing bag, or slowly through a long tube, and it would be quite difficult to retain heat in an ether and air mixture obtained by passing a current of air through the ether. On the other hand, proximity of the heating appliance to the delivery tube, this tube of restricted length and calibre, an impervious mask, and the ether evaporated by heat seem to be essential to the success of this method.

By means of a device¹ conforming to these conditions it is possible to administer this anesthetic vapor warmed to any desirable temperature, and, by evaporation faster than desirable in anesthesia, to record some temperatures surprisingly high.

Experiment 1. Length of delivery tube twenty-two inches, diameter one half inch, Esmarch mask covered with gutta percha tissue, closed by placing it upon woolen cloth, temperature of water in wash bottle 212° F., ether boiled vigorously. Maximum temperature recorded in mask 146° F., temperature of room 78° F.

Experiment 2. Conditions same as in experiment 1. Temperatures taken from end of tube without mask, in open air. Ether allowed to travel toward thermometer bulb along woolen cloth to give it direction, and limit diffusion. Temperature at end of tube 126° F., one inch distant 122° F., three inches distant 110° F.

In actual practice the temperature range obtained by introducing the thermometer bulb through a small opening in the gutta percha mask, with mask applied to face, has been repeatedly recorded as follows: By slow evaporation for moderate delivery, 99° F., to 100° F.; by more rapid evaporation in early stages of anesthesia, 102° F., to 107° F.

These results unquestionably establish the practicability of administering to the patient anesthetic vapor modified by warmth. The question, however, of the advantage of so doing has become somewhat blurred by reasoning regarding its intrinsic and its comparative merits, and, on the other hand, by doubts of its actual possibility.

From a series of one hundred patients anesthetized by warmed ether vapor, I desire to present two which illustrate, I believe, its superiority over the algid method of application.

CASE I. Female, aged thirty-one years. Victim of fre-

¹Some Considerations of General Anesthesia, NEW YORK MEDICAL JOURNAL, November 9, 1912.

quent sick headaches, was anesthetized by drop method three years previously, after which vomited for the rest of the day and frequently during the subsequent night. Operation: Removal of ovarian tumor; duration, one and one quarter hour; amount of ether used, 125 grammes. Results, little perceptible shock, slight vomiting in early stage of etherization, vomited twice before return to consciousness, vomited once six hours later after taking water, no further distress, vomited matter entirely bile and mucus. Temperature of room 84° F., of ether in mask 98° F. to 107° F.

CASE II. Male, aged twenty years. Gunshot wound, with disruption of bone and muscles of arm below right shoulder. Operation, amputation at shoulder. Condition of respiratory passages: Partial stenosis of nares, enlarged tonsils, excess of postnasal secretion, mouth breather. Time of ether administration, one hour; amount used, ninety grammes; temperature of room 82° F., of interior of mask during etherization 99° F. to 106° F. After effects: No increase of pharyngeal secretions; no nausea, vomiting, or subsequent complaint of dryness in throat; considerable surgical shock apparently not aggravated by anesthetic reactions.

These cases are cited from a series, including the extremes of age and all grades of severity of operation, because they possess the conditions which are usually attended with difficulty during anesthesia, or distress afterward.

In Case I comparisons are possible because we had already had experience with the drop method. It is, I believe, to be expected that those prone to sick headache will vomit often severely during and after any form of general anesthesia. In this case, however, vomiting was limited to the necessary function of unloading a bile flooded stomach. And, I believe that it usually works out in practice that throat irritations, as illustrated in Case II, whether due to adenoids, enlarged tonsils, or membrane congestions from any cause, especially alcohol, contribute largely, when aggravated by cold inhalations, to anesthetic complications. It cannot always be definitely stated regarding medicines or anesthetics, that a procedure in a given case is better or worse than another would have been, nor is it possible to estimate how much of a given shock condition is due to injury at operation, and how much to the stress of anesthesia. Many cases, however, similar in results to these, both as regards local and general conditions, lead to a positive belief in the mitigating influence of the warmed vapor. In fact, since the use of the anesthetic vapor, by the method referred to, I have yet to see a departure from normal placid breathing, sufficient for the use of tongue forceps or throat swab.

The practice of medicine is replete with problems which depend for solution, not upon exact experiment, but upon the judgment of experience, and the formulation of conclusions from factors as variable as are individual reactions is especially difficult. On the other hand, satisfaction with a result rests largely with an observer's conception of what is adequate and what is ideal. It is, therefore, sometimes difficult to proclaim the merits of one method over another without encountering differences of interpretation, of standards, of expectation, and of conclusion, oftentimes regarding the same experience.

It is not the contention of the writer that it has been proved that a distinct advantage accrues with

the increasing warmth of the vapor, though it is a reasonable conception that such addition favors rapid absorption and quick results, and clinical experience seems to warrant such a conclusion. But it requires no expert observer favorably to contrast the natural and placid breathing of a patient anesthetized by warm vapor with that of one whose membranes are swollen and awash from the irritation of algid inhalations.

It is futile to cite many cases to prove a contention of this sort, for cases may be multiplied in any series which will apparently prove its equality or superiority to other methods, and certain factors in many cases are difficult of description, and the description of refinements especially is apt to resolve itself into hair splitting distinctions. But it is possible, I believe, to assume with confidence, from experience in hand, that the administration of ether vaporized at a distance from the patient, the so called closed method, is a distinct advance, whether warmed or not; that the vapor will act with an increased rapidity proportional to its warmth; that placid breathing resembling natural sleep during anesthesia is often an index of nerve competence, and this efficiency is weakened and disturbed by algid anesthetic irritations. With more confidence it may be asserted that ether amounts will average less than by other methods, this shown not especially by cases cited, but by statistics of hospital expense; that dryness of throat is never complained of unless oxygen has been added; that patients awaken with less distress, and with a marked and favorable difference in appearance; that it is suitable for extreme infancy and old age; that cold produces the so called irritation of ether, contributing to nausea, vomiting, and shock, delays the return to nutrition, disturbing the stomach by ingestion of ether laden secretions, and annoys the patient by leaving a lingering after taste on the breath, due to impairment of the eliminative functions of the mucous membranes. And in general it may be stated that the vapor, warmed, in some way loses a portion of its odoriferous strength and persistence, to the relief alike of anesthetist, surgeon, patient, and that frequent individual of the laity in whom it seems to generate a feeling of repugnance approaching the personal.

RELATION OF EUSTACHIAN TUBE TO CHRONIC CATARRHAL OTITIS MEDIA.

Experiences in Treatment.

BY HAROLD HAYS, A. M., M. D.,
New York,

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The majority of otologists are turning more from empiric to rational therapy, particularly so in the treatment of catarrhal conditions of the middle ear. Unfortunately in our study of the subject of catarrhal deafness we are greatly handicapped: for it is impossible to dissociate the delicate mechanism of the sound conducting apparatus from its sur-

rounding parts and study it under the microscope in any thorough manner. Microscopic findings after death differ widely from the true condition of affairs during life. However, there is one factor in our favor. We know positively that the phenomenon of sound conduction can be explained on a mechanical basis and we are also able to ascertain by means of suitable tuning forks whether the mechanical parts of the middle ear are doing their duty in conveying sounds to the inner ear, auditory nerve, and brain.

In the treatment of chronic catarrh of the middle ear we are not in a position, oftentimes, to treat the middle ear directly. It must most often be done by treating the cause of the condition, such as a catarrh of the nose and throat or by attempting to get at the middle ear through that most difficult of all channels—the Eustachian tube. Any instrumentation applied to the drum or to the small ossicles, will often result in a further impairment of hearing or an infection which is worse than the original condition.

During the past few years I have attempted to study the relation of the Eustachian tube to catarrhal deafness, and I am of the opinion that the closing of this little tube is accountable for more trouble in this direction than anything else.

The pathological alterations which give rise to a catarrhal deafness are readily explained, and the end result can be most readily seen. In my study of a considerable number of cases, the Eustachian tube was obstructed in at least ninety-five per cent. In the other five per cent. the tube had opened as a result of atrophic changes which had taken place, and in these cases the hearing was worst.

The middle ear depends for its function on equal atmospheric pressure on both sides of the membrana tympani. When a rarefaction of air takes place within the middle ear cavity, which can occur only as a result of a blocking of the Eustachian tube, the diminution of pressure allows of an increased concavity of the drum head. If the normal pressure is restored within a short time no harm may be done. But if the middle ear cavity continues to be closed off, a negative pressure results which in many instances is hard to overcome. If no air enters this cavity over a period of weeks, months, or years, the ossicles and the joints between them refuse to send their proper impulses into the cochlea. As is inevitable with any other joint in the body which long remains inactive, ankylosis takes place until no restoration of hearing can occur unless radical treatment is employed. In some of these cases, particularly those of long standing, even establishing the patency of the Eustachian tube will be of little effect; for by that time connective tissue changes have taken place, which are just as permanent as the formation of scar tissue elsewhere.

It is impossible to say what the cause of the stricture or stenosis is in every instance. I hardly think that a true stricture ever occurs. But there is no question that thickening and infiltration of the connective tissue and mucosa of the tube take place in almost every case of chronic catarrh of the ears. This change is almost always secondary to changes in the nasopharynx, nose, or throat. It has become

a common custom of otologists to confine the greater part of their treatment to the nose and throat, using as adjuvants such aids as massage of the ear by catheterization or Politzerization. The relief of bony obstructions in the nose, the enucleation of tonsils, the removal of adenoids, the breaking down of adhesions in the fossa of Rosenmüller, are measures which are absolutely necessary in order to insure any permanent relief. Yet the alleviation of these conditions, by themselves, will only be a step in the right direction and will not effect a cure. It is seldom that the Eustachian tube will open and remain open when treatment is stopped at this point. One must use such further means as will show a tendency to a restoration of the patency of the tube.

In the treatment of a stenosis of the Eustachian tube, a rational treatment consists in using such measures as will allow the patient to massage his own middle ear during the interim of treatment. And this is best done by the employment of suitable bougies which can be left in place for a sufficient length of time to insure this result. Within the past few years such bougies and sounds (thanks to the ingenuity of Doctor Yankauer) have been placed upon the market. The degree of patency of the tube is first ascertained, and then it is cocaineized up to the drum membrane by means of suitable applicators. A small bougie or sound is first introduced, and when one is sure that it is beyond the isthmus and in the middle ear, it is allowed to remain in place for a half to one hour. This is followed by gradual dilatation at each sitting until one finds that the tube remains permanently open and that massage is effective with the Politzer bag. Obviously, a treatment of this kind must extend over a period of weeks or months and sometimes taxes the patience of the physician and patient. I make no promises as to the ultimate outcome of such treatment, and usually the patient is the best judge as to whether the treatment is doing any good or not. After the first month of treatment, these patients as a rule are very much encouraged, and the best evidence as to the benefit that arises is founded on their continued attendance for further treatment.

There are a certain number of long standing cases in which this treatment accomplishes little; the ear drum and middle ear appear to be dead. In these cases I have attempted to reactivate the part by the employment of injections of various medicaments into the middle ear. After proper cocaineization I insert a fine catheter (about the size of a ureteral catheter), into the middle ear. By means of a hypodermic syringe attached to the distal end of the catheter, I inject five or ten minims of some slightly irritating but antiseptic (?) solution. A ten per cent. argyrol solution works well in these cases. At the end of a few hours an inflammatory reaction takes place, until in most cases a transudation of serum occurs through the drum. This inflammation is very painful, but seldom lasts more than forty-eight hours. In the few cases where I have employed this treatment, the hearing has been markedly improved.

The employment of any instrumentation to the Eustachian tube which has a tendency to irritate the

mucous membrane in any way, will eventually do a great deal of harm. The forcible passage of whalebone bougies, the use of the galvanic current, although causing improvement in some cases, has given rise to a great deal of suffering and permanent injury. After the use of such methods, I have known true strictures to occur. With the use of the softer and more pliable bougies and catheters, injury is not likely to occur, but unfortunate accidents may arise which are a source of a great deal of worry, the chief among them being emphysema.

In the attempt to pass an applicator made of a strand of cotton wound over fine piano wire, into the Eustachian tube, the applicator often finds its way easily into the mouth of the tube and then meets an obstruction. Often this obstruction is due to a fold in the lax mucous membrane and sometimes it is almost impossible to get beyond this point. Unconsciously a little extra pressure may be used and, in the subsequent inflation (for the obstruction may have been passed), a small amount of air enters the little wound that has been made. Such a small amount of air may enter at the time that it is not noticed by the patient until a few hours later when the neck begins to swell; and I have seen cases where the swelling has been so great as to extend down to the clavicle and upward until it has closed the eye. The patient naturally becomes very much alarmed. But I have never seen a case where the air could not be absorbed or driven from the tissues by gentle massage and the application of warm compresses to the cheek and neck.

The passing of a Eustachian catheter is a simple matter; and oftentimes when the tip enters somewhere into the Eustachian orifice, air may be forced into the middle ear sufficiently to massage the drum membrane. Yet if one wishes to employ direct instrumentation to the middle ear, the Eustachian catheter must fit accurately into the mouth of the tube. There is a great deal of difference in the distance of the Eustachian orifice from the nostril in various patients and by actual measurements I have found the difference to vary as much as two centimetres. The distance may vary on the opposite sides of the same nose. Then again, the conformity of the Eustachian eminence and mouth of the tube varies greatly. In some cases the eminence is so slight that it cannot be felt by the catheter at all; in some cases it is higher up in the nasopharynx than it should be, in other instances lower. I have frequently found it necessary to insert the pharyngoscope into the mouth while manipulating the catheter in the nose before I was able to get the proper bend to it and insert it in the proper position. Oftentimes the catheter had the wrong bend, or for one reason or another it did not fit snugly into the tube. One must exercise all his ingenuity at times to get a successful result in difficult cases. I have come across no case up to the present time in which I was not able to get into the middle ear, although in some cases I had to persist for weeks.

The most discouraging part of these treatments of catarrh is that patients become restless and discouraged and will not continue their treatments as long as necessary. A condition such as this, which has been developing for years, cannot be overcome

in a few weeks. Men suffering from deafness, as a rule, are better patients than women, for they recognize the economic importance of losing their hearing and the slightest sign of any change for the better will keep them coming to you for years if necessary.

11 WEST EIGHTY-FIRST STREET.

EPIDEMIC MENINGITIS.*

An Analysis of 210 Cases, with Symptoms, Diagnosis, and Prognosis.

BY F. J. SLATAPER, M. D.,

Houston, Texas,

Pathologist to the City Health Department.

The forms of meningitis can be described as acute and chronic, with subdivisions of the acute.

ACUTE CASES.

1. *Ordinary meningitis.* Since meningitis is an unusual complication of a rhinitis, due to the diplococcus of Weichselbaum, the period of incubation is as indefinite as the length of this infection in the upper air passages. In almost all (ninety-seven per cent.) cases a history of coryza can be elicited, varying in duration from a few days to several months. The prodromal symptoms are most often aching of the limbs, backache, pain in the orbits, restlessness, and anorexia which precede the onset by a few hours to several days.

The onset is sudden with a violent headache (100 per cent.), combined with vomiting (eighty-seven per cent.), dilated pupils (percentage not taken), chill (sixty-eight per cent.), and rash (seventy-eight per cent.). The headache is never absent, and is usually present with at least two of the foregoing symptoms. The headache at first is frontal and usually supraorbital. In a few hours after the onset, it extends over the whole head, including the occipital area, which becomes the spot of most pronounced pain. The vomiting starts usually without previous nausea, and is often apparently caused by the taking of some food or drug, to which the patient attributes many of his symptoms. This vomiting is often projectile, and at times is distressing. A petechial eruption is often present, which persists throughout the disease. An early symptom in some cases (ten per cent.) is a subcuticular mottling, that quickly appears over the entire body, and after a few hours, leaves as suddenly as it formed. The disease sets in occasionally (eight per cent.) with signs and symptoms of a lobar pneumonia. When the meningitis symptoms become developed the pneumonic condition vanishes. In nonpregnant women, during the childbearing period, the onset is usually (eighty-five per cent.) at the time of the menses.

The fastigium of meningitis presents a patient restless from an agonizing headache, and begging for relief. The restlessness is continuous and at times very exhausting. The head is retracted, the

*The data in this communication form a resumé of an epidemic of meningitis that was prevalent in Houston during the winter and spring of 1912. The first case included in these notes occurred on January 1st and the last on June 28th. Read before the Harris County Medical Society, Houston, Texas, October 18, 1912.

muscles of the neck are stiff and painful. In most cases during the first few days, the head is drawn further back each twenty-four hours and continues usually in spite of any general improvement. The same type of tonic spasm may hold other groups of muscles. The knees and elbows are often held flexed. The thumb may be flexed upon the palm of the hand. Herpes labialis is more often present (fifty-eight per cent.) than absent. The eruption (seventy-eight per cent.) of spotted fever is a petechial rash, most prominent upon the back and shoulders. In the case of blonds it is colored a cherry red, in that of brunettes raw ham colored, and in negroes it is slightly darker than the skin. The papules in the colored race are best detected by palpation. A bullous eruption is rarely (two cases) present. The mental condition in meningitis depends upon the severity of the disease and the treatment. Consciousness is nearly always retained when the specific serum is given early. Without prompt treatment a stupor comes on that dulls the sensory symptoms, and this condition soon changes into coma. The average time from onset to unconsciousness is twenty-two hours. Coma vigil is often seen. A delirium frequently alternates with the coma. Mania may be present in the more serious cases. Convulsions are rare even in children. Strabismus, nystagmus, and pupils of unequal size are diagnostic symptoms that should be looked for in all cases, especially in children. The room, in a case of meningitis, is apt to be kept dark and quiet on account of photophobia and the increased sensitiveness to noises. Tinnitus aurium sometimes occurs. A cutaneous hyperesthesia is present in most cases. In different cases the pulse rate varies from fifty to 160, the respirations from twelve to eighty a minute, and the temperature from 96° to 106° F. This irregularity of pulse, respiration, and temperature, is due to the combination of the toxemia and the involvement of the nervous centres. These symptoms, however, are so variable as to be of no diagnostic value. Hyperpyrexia may occur just prior to death. The blood pressure is usually increased. Leucocytosis is always marked throughout the disease. The vomiting disappears usually with the onset, but in some cases may persist and be distressing. There is usually constipation, but rarely diarrhea. In many cases there is incontinence of the bowels and bladder. Some patients have retention of urine and often albuminuria. The urine rarely contains sugar. Hematuria (two per cent.) and hemoglobinuria (one per cent.) are seen at times, and when present may disappear. The so called hydrocephalic cry is often seen in young children and closely resembles the whine of a cat. The increased tension or bulging of a baby's fontanelle is almost pathognomonic of a meningitis. The length of the fastigium is variable. Usually it lasts from one to seven days. The average time from the first dose of serum to the first sign of convalescence being four (3.8) days. A quiet natural sleep in the acme of the disease is usually the first symptom to point to a recovery. The relief of pain and return of appetite are good omens. During convalescence the patient is usually nervous, and often complains of extreme weakness of the lower limbs, especially in the knees.

2. "*Volcanic*" meningitis. This malignant form of meningitis on onset is like the "ordinary" except that it is much more explosive. The patient is usually unconscious and often near death before the physician arrives. The fastigium has more violent symptoms. There is a greater disturbance in the blood pressure, pulse rate, respiration, and temperature. The bowels and bladder are usually incontinent. The petechiae often cover the body, and sometimes the eruption is purpuric. One patient was dead twelve hours after the initial headache, and two died within twenty-four hours.

3. *Abortive meningitis* (twelve cases) has the usual prodromal and onset symptoms associated with a stiff neck and Kernig's sign, which disappear suddenly without treatment. There are to be seen in times of an epidemic many cases of "meningophobia" in which the patient has the subjective symptoms of meningitis and the objective signs wanting.

CHRONIC CASES.

Chronic meningitis is (six per cent.) occasionally seen. The peculiar muscular contractures and the extreme marasmus characterize the condition. The temperature and headache are often intermittent. The symptoms of chronic hydrocephalus in these cases are described by von Ziemssen as "paroxysms of severe headache, pains in the neck and extremities, vomiting, loss of consciousness, convulsions, and involuntary discharges of feces and urine." The patient may lie for months in a typhoid state.

COMPLICATIONS.

Single and multiple arthritis (fourteen per cent.) are the most frequent complications of the disease. Pericarditis is rare. Bronchopneumonia is usually (fifty-eight per cent.) the terminal infection in patients past forty years. Cystitis may occur. Pyelitis is rare. The most common eye complication is conjunctivitis. A purulent conjunctivitis may be seen (three per cent.) in other members of the same household not sick. A serious complication of this organ is an iridocyclitis (two cases) that is secondary to the conjunctivitis. An optic neuritis sometimes extends from the meninges that may involve the whole orbit. Chronic suppurative diseases of the middle ear seem (seven per cent.) to predispose to epidemic meningitis. In these cases deafness is made worse during the meningitis. A nerve deafness is present in rare cases. Ordinarily, deafness in meningitis is a symptom due to the stupor.

RELAPSES.

Relapses are frequent (seventeen per cent.). The symptoms of a relapse are those of the onset and should be recognized at once. Remember that the headache becomes occipital. The increased stiff neck and exaggerated Kernig's sign are quick to manifest themselves.

DIAGNOSIS.

The physical signs of meningitis are:

Stiff neck. By a stiff neck is meant the condition where the neck cannot be flexed so that the chin touches the chest. Any attempt at passive flexion is attended with violent pain.

Kernig's sign is the inability to extend the leg

when the thigh is held flexed at right angles to the abdomen. Acute pain and muscular spasms are always present in a typical Kernig. When the patient cannot extend his own leg the sign is said to be "active"; and "passive" when some one else cannot extend the leg, while the thigh is held at right angles to the abdomen. The active Kernig's sign is of value as it cannot be feigned by a patient with meningitis, on account of the spasm and pain. Kernig's sign may be reinforced by holding the chin flexed toward the chest and at the same time test for the sign in the usual manner. This procedure often makes, in the early part of the disease, a doubtful sign positive. A Kernig's sign may be present in one leg and absent in the other. A typical Kernig's sign may be present in the cerebrospinal irritation of typhoid fever and pneumonia.

Brudzinski's sign. "Flexing the head on the chest causes flexion of the legs at the hip and knee joints, and flexing one leg on the trunk produces the same movement in the other leg." (Osler.)

MacEwen's sign is of value as indicating the increased pressure of the fluid in the ventricles. It consists of the "increased resonance on combined percussion and auscultation of the skull," and is heard best by tapping over the squamous portion of the temporal bone while a stethoscope is held against the forehead or the opposite temporal bone.

OTHER SUGGESTIVE SYMPTOMS.

Herpes labialis, in a case of acute meningitis, is strong evidence that the disease is of the epidemic type. The presence of a second case of meningitis in the same house, often makes an early diagnosis possible. A gradual onset with abdominal tenderness is suggestive of typhoid fever. All symptoms of lobar pneumonia, in times of a meningitis epidemic, should be watched for the onset of meningitis. The onset of variola may be misleading, but the eruption on the face, with a general improvement and a negative Kernig's sign, soon point to the correct diagnosis.

LUMBAR PUNCTURE.

All doubtful cases of epidemic meningitis should be decided by an examination of the cerebrospinal fluid. The operation is only slightly painful, though seemingly greatly so on account of the hypersensitiveness of the patient. With the sudden change of pressure in the fluid of the spinal canal there is often a "bursting" headache due to the uneven pressure between the subarachnoid space and the ventricles. When the mind is clear, the puncture can be made painless with the use of a weak solution of cocaine. The action of a freezing mixture is too transient. Although recommended by some, a general anesthetic is depressing, and seems to lower the vitality. All patients not perfectly rational should be held by tying a twisted sheet over the back of the neck and under both knees, bringing the chin as close to the knees as possible. This widens the intervertebral spaces and prevents the struggling from breaking the needle. The third lumbar interspace is the one of election. The fourth and second may be used if difficulty is met on entering the canal. If these interspaces are closed by the extreme opisthotonus the lumbosacral space will be found wide open by the same muscul-

lar action. In young babies, when the spinal canal cannot be reached, the anterior fontanelle may be used (two cases with recovery). With the patient on his right side, near the edge of a table, firmly press the left thumb against the selected interspace as a guide, while the right hand passes the needle forward and slightly upward. If a vein should be opened, avoid the middle line and direct the needle slightly inward at the same time. In epidemic meningitis the fluid is under an increased pressure; is turbid; and on microscopical examination shows many polymorphonuclear lymphocytes in excess of the mononuclear. The meningococci are both extracellular and intracellular. Often when the puncture is made early in the course of the disease, the fluid will be clear and the centrifugated sediment contains no microorganisms, while in less than twelve hours the fluid from a second puncture will be turbid and show the meningococci. A negative puncture early in a disease with meningeal symptoms, should be repeated after sufficient time has been allowed for the pus to form. Symptoms of a fully developed case of meningitis with a clear fluid is not of the epidemic type, and if the polymorphonuclear lymphocytes are less than the mononuclear, it is probably tuberculous.

PROGNOSIS.

The prognosis depends upon the virulence of the infection, the age of the patient, and the early specific treatment. In those past forty years of age, over eighty-five per cent. die independently of the character of treatment. Otherwise, adults, children, and babies seem to have an equal chance. The prospects are four times better when the first dose of serum is given before the patient has lost consciousness (eight per cent. vs. thirty per cent. mortality). The use of specific serum gives a general mortality rate of twenty-one per cent. against eighty per cent. in patients (including abortive cases) not so treated. Over ninety-five per cent. of the recoveries are attended with no serious sequelæ. Last, but of not least importance remains the fact that in the recovered cases, which received the first dose of serum during consciousness, there exists not a single serious sequela.

THE WORSTED TRUSS.

By WALTER B. JENNINGS, PH. B., M. D.,
New York.

The fact that hernia is a common condition often seen by the physician or surgeon cannot be gainsaid. The fact that strangulated hernia is frequently seen and could have been prevented is indisputable. The term hernia as used in this paper refers exclusively to congenital inguinal hernia.

During ten or twelve years of service in the outdoor poor department of St. Mary's Free Hospital for Children, it was not an unusual thing to see one or two cases a week of hernia in infants ranging in age from three weeks to five or six years. All the patients treated averaged about 2,000 a year, and a proportion of fifty cases out of 2,000 is not a large one. Many of the older children were successfully operated upon, but when one considers that over

half of the patients with hernia seen were under one year of age, something had to be done to control the condition, i. e., to try to prevent the hernia growing larger as well as to prevent strangulation.

The proportion in regard to sex, the writer's records show to be the following: Twelve male to two female, and, in regard to position, five on the right side to seven on the left. These figures correspond to those of Kingdon and others in authority, but the writer is not interested or concerned in statistics, except in passing, but he would like to make a plea, and a strong one, for the worsted truss.

There is nothing new in the use of worsted as a truss in infants, but after talking with students as well as practitioners, it seems that many of the younger generation in medicine are not familiar with its use. The writer first learned of it through the late Dr. Robert Watts, Jr., but the second edition of the *American Textbook of Surgery* (page 788) has an account which is excellent.

CONSTRUCTION OF THE TRUSS.

Take eight or ten strands of a skein of white Germantown knitting wool, make a loop, and place around the child's body below the navel, tighten, and bring the knot over the external ring, cut the free end, and bring it down on the inside of the thigh near the perineum and back up over the gluteal fold; then tie the cut free end to the band of worsted already around the pelvis.

REMARKS.

The writer does not wish to be misunderstood in regard to the radical cure of hernia, but he strongly recommends the worsted truss for the newborn and infants a few weeks or months old, to be used until the hernia is cured (the muscles having become stronger) or until such time as the child is old enough to stand the shock of an operation.

It is simple; it is effective; it is easy for the mother to learn to put on. Any woman with sufficient intelligence to read the morning paper, after a few trials with the aid of her family physician, can adjust the worsted truss. It does not irritate or chafe, is easily washed, and is not expensive.

140 WADSWORTH AVENUE.

CARCINOMA OF THE LUNG.

Report of a Case.

BY MAURICE FREIMAN, M. D.,
New York.

Carcinoma of the lung is a rare condition, especially if primary in origin. The case I am about to publish is primary as far as my observation has gone. I will give the post mortem findings as far as we were able to proceed.

CASE. W. L., aged forty years, born in the United States, occupation driver.

Family history: Father died of tuberculosis, mother of carcinoma of uterus. Two brothers and one sister alive and well. Personal history: Did not recollect ever having any of the diseases of childhood but said that his stomach was always "bad." Since childhood had never been sick except that his stomach still troubled him and a diagnosis of ulcer of the stomach was made at one of the hospitals.

Did not recollect ever having been hurt. Close questioning did not reveal any history of pneumonia, tuberculosis, or any trumatism of the thoracic region. Venereal history: Denied syphilis, but pleaded guilty to two attacks of gonorrhea. Had never used whiskey but had drunk beer to excess. Smoked and chewed.

Present illness: Could not recollect when he first felt sick but said he had not felt well a month or more before seeking attention. The patient was first seen by me about June 2 1912, complaining at that time of shortness of breath. Examination at this time showed nothing pathological, except numerous sonorous and sibilant râles over both lungs, anteriorly and posteriorly. A tentative diagnosis of asthma was made and the patient given suitable medication. This seemed to relieve him a great deal and he was able to carry on his business.

He returned in about a week with the same complaint, but in greatly aggravated form. His face was now ashy white, and he complained of some pain in the region of the right apex.

Inspection at this time showed the necessity for systematic examination, which was at once made and showed as follows: Physical examination: Patient was well formed and developed. Skin of lemon tint and cool to the touch. In the axilla and groin and the axilla the skin hung in folds, showing rapid loss of flesh. Eyes and ears normal. Heart, normal with a weak first sound. Lungs negative to inspection. Palpation showed increased vocal fremitus over the right apex down to the fourth rib anteriorly. Percussion gave dullness to the fourth rib anteriorly. Auscultation disclosed vocal fremitus to be diminished over the same area. Breath sounds were lost over part of this area and diminished over another part. No other abnormality could be detected in any other part of the body. There was no history of any cough, nevertheless a small amount of sputum was obtained only to be reported negative as to tubercle bacilli. The patient was now so weak that he willingly took to his bed. There was no rise of temperature at any time.

June 15th. Patient was much weaker. Still had a fair appetite, but the dyspnea was now much more pronounced and the pain in the right thorax was very much worse. Examination at this time showed that the dullness had extended down to the eighth rib. The loss of flesh was very marked, and a diagnosis of carcinoma of the lung with mediastinal involvement was made, with a possibility of an empyema. To confirm this last suspicion the needle was introduced but a dry tap was obtained. This was tried again the following day, with the same negative results.

Blood examination showed red cells, 3,500,000; white cells, 10,000; the differential count gave polynuclears, seventy-four per cent.; mononuclear and lymphocytes, twenty-one per cent.; eosinophiles, three per cent.; mast cells, one per cent. This was the ratio practically maintained in five examinations. Urine examination was negative, except toward the end when a little albumin was found.

June 26th. Patient was practically in the same condition, but a great deal weaker, and the dyspnea was very marked. He could no longer get out of bed. Examination showed the involvement of the entire right lung, but the left lung was still unaffected, but there were râles over the latter, bronchial in character.

June 29th. No marked change.

July 1st. Patient could no longer eat, and had to be fed chiefly on milk and soups. He retained however all nourishment; mind often wandered; was in great pain.

July 3rd. Pain was the prominent symptom and the patient had to be constantly under the influence of an opiate. Heart action was very weak and the peripheral circulation very poor. Physical examination showed no marked change, except the liver slightly enlarged, probably from venous stasis. Patient died at 10 p. m.

At autopsy only the thoracic organs were examined and a large colloid carcinoma affecting the right lung and all the mediastinal glands was found.

This case is interesting in that it illustrates the insidious onset as well as the rapid termination of these cases. The great pain is in marked contradiction to the usual teaching in these cases.

71 EAST 118TH STREET.

Abstracts and Reviews.

THE PREVENTION OF TYPHOID FEVER.*

BY MAJOR F. F. RUSSELL,
Medical Corps, United States Army.

The basis upon which rest the original studies which led up to the perfection of antityphoid inoculation, was the observed production of practically complete and permanent immunity as the result of an attack of typhoid fever. Pfeiffer and Kolle, in Germany, and Sir A. E. Wright, in England, in 1896 and 1897, showed the practicability and scientific soundness of prophylactic immunization by means of bacterial vaccines. As a direct result of the studies of these observers small numbers of volunteers were vaccinated, which demonstrated the harmlessness of the procedure. Soon rather extensive immunization was carried out in the British army in India and on the troops in the Boer war and, by the Germans, on some of the troops in the African campaign against the Hereros. These early inoculations were productive of very promising results, the Germans reporting a reduction in morbidity of about one half, as well as a reduction in the proportion of fatal cases among the vaccinated compared to that among the uninoculated. In the light of our present experience we can attribute the partial failure of the early methods and the severity of the reactions then encountered to two essential errors. The first was that the Germans used doses which were excessively large and hence caused the severe reactions. The second, both Germans and British killed their cultures at 60° C., a temperature which we now know almost completely destroys the value of the vaccine. Nevertheless, even in the face of these defects, the results of immunization were very promising.

It was not until 1907, after Wright's visit to the United States and the reporting by Leishman of his remarkable results in India with an improved vaccine, that the United States Army medical authorities became interested in the subject. I was soon sent to England and Germany, where I became familiar with the work that had already been done. My time was spent particularly in the laboratory of Leishman, and from him I obtained the old avirulent strain of organisms which he then used, and which has since supplied the vaccine used in our own army. It might be noted that many other strains have been tested on animals, but none has yet been found which has an equal power of producing agglutinins. The vaccine used in our army differs somewhat from those employed elsewhere, and as it has given results not equalled by any other preparation, I will state the general principles of its preparation.

The organism is planted in broth and grown for eighteen hours. From this culture large flat agar plates are sowed and incubated for forty-eight hours. The growth is then washed off with saline and killed by heating for one hour to 53° C. Tests of sterility of this suspension are then made, using relatively large amounts for the sake of certainty.

The number of bacilli to the c. c. is then determined and saline solution is added to make each c. c. contain one billion organisms. One quarter of one per cent. of trikresol is added to insure sterility and to increase the keeping power of the vaccine. During the course of the preparation morphological tests of the purity of the cultures are made at frequent intervals. After the vaccine is completed it is again tested by aerobic and anaerobic culture and animal injection. It is then placed in ampoules and sealed hermetically. The vaccine, therefore, consists essentially of the whole body of the bacillus changed as little as possible.

The use of the vaccine in the United States Army was begun in 1909 and met with such success that in September, 1911, its administration in the army was made compulsory for all men under forty-five years of age. The United States Army is the only one at the present time in which its use is compulsory, thus conferring an advantage over all others, for the best that can be done under voluntary administration is to protect some eighty to eighty-five per cent. of the troops. Further, in our army alone is the three dose inoculation employed, hence we cannot fairly compare our results with those obtained by only one or two doses. It may be said, however, that the three dose method confers a greater degree of immunity and one which is more lasting than do the other methods.

Perhaps the most serious obstacle to the early use of the vaccine, and one which still sways many civil physicians, was the bugbear of the so called negative phase of Wright, in which the patient was supposed to be rendered more susceptible to infection than is normally the case. This idea of the negative phase is wholly fallacious, and the injection may be made in the face of an epidemic of typhoid without the least danger of increasing the liability to infection.

Before speaking of the results which have been obtained by the use of this method of immunization, it should be mentioned that Reed, Vaughan, and Shakespeare showed how far sanitation alone might be expected, under the best of conditions, to reduce the typhoid morbidity and mortality. They came to the conclusion that the best that could be expected was three cases of typhoid in 1,000, and that if troops in perfect health were brought together into camp typhoid would appear, even in the absence of an epidemic, in less than eight weeks. Their studies, further, showed that water was of relatively minor importance in the spread of the disease, and that while flies contributed to a certain extent, the most important mode of transmission was by contact, that is that typhoid is strictly a contagious disease. The corollary to this is the necessary limitation of efficacy of general measures of hygiene and the need for some other additional means by which the disease can be controlled.

This other means is supplied by the immunization of the individual through the use of the vaccine. This is shown by the comparison of the typhoid statistics for Jacksonville, in 1898, and Texas, in 1911. In the former there were more than 1,000 cases among 10,000 troops and the mortality was very high, eighty-seven per cent. of the total deaths being due to typhoid. In 1911, in

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, February 8, 1913.

Texas there were only two cases and no fatalities. It is interesting to note that in Texas there was endemic typhoid in Galveston where the men were free to go on leave.

After the order for compulsory vaccination went into effect in September, 1911, some time was required to complete the protection of the entire army so that it was not until at the beginning of 1912 that every man had been inoculated with his three doses. The standing army for 1912 numbered more than 58,000 mean strength, and during the year there were only fifteen cases of undoubted typhoid fever among the whole number, with a total of but two deaths. Of these cases there was only one occurring in a man who had received all three injections. The lowest obtainable admission rate for typhoid fever in the army under the best hygienic conditions was reached in 1908 when there were 2.94 to 1,000 mean strength with 0.23 in 1,000 mortality. Against this stands the 1912 record of 0.26 admissions and 0.03 mortality a thousand. These figures are unequalled elsewhere in the world.

Vaccination against smallpox has been uniformly conceded to be the greatest protective yet obtained in the prevention of a contagious disease. In a period of four years there have been sixty-five cases of smallpox with four deaths in the vaccinated in our army. In the same period there have been only twenty-seven cases of typhoid fever with one death among the vaccinated. It is obvious that there is no such thing as conferring absolute immunity against a contagious disease, but it is equally obvious that the protective inoculation against typhoid fever is as successful as that against smallpox.

The question of the duration of the immunity which is produced so efficiently by this method of vaccination must remain unsettled as yet. The British conclusions are that it is effective for two and a half years, but it is to be remembered that they do not use three doses and hence do not obtain so high a grade of immunity as we. Our own observations have shown no diminution in the immunity after four years. Revaccination every four years against both typhoid and smallpox have, however, been made compulsory in our army.

The essentials for prophylactic vaccination may be enumerated:

1. It must be harmless.
2. It must not cause unpleasant effects.
3. The immunity must last a considerable length of time.
4. The vaccine must be reasonably stable and must be capable of ready preparation at short notice.

The prophylactic vaccination now in use in this country fulfills all of these requirements. We have seen that it confers fairly lasting immunity. It has been shown conclusively that it is harmless. That it is not unpleasant is attested by the observation that in ninety-seven per cent. of the inoculations the general reaction was absent or very mild. The vaccine is very readily prepared, practically as fast as it can be administered, and it keeps perfectly for at least four months, probably longer.

A word may be said about other vaccines than those already mentioned. Vincent has suggested

the advisability of preparing the vaccine from the strain peculiar to the locality in which it is to be used. He reports excellent results by this means, but the results obtained by the method in use in our army are so good that his suggestions seem superfluous. Metchnikoff and Besredka advocate the use of living sensitized organisms instead of killed cultures. It is not necessary to discuss this suggestion farther than to ask whether any one thinks that such a method could justifiably be made a compulsory measure with our present knowledge.

One point in regard to the duration of the immunity conferred by vaccination deserves mention, that is the significance of the results of tests of agglutinating and phagocytic powers of the blood of the inoculated. It has been found that these last as long after the artificial immunization as they do after the disease itself, which is known to confer permanent immunity. They are not to be taken as indications of the duration of the immunity produced, disappearing in both classes after a year or so.

Besides the use of antityphoid vaccination in armies it has a wide field in civic life. By it the personnel of hospitals and institutions, the members of mining and lumber camps, schools, etc., may be protected. It is the only method by which the individual can be protected against the ever present residual typhoid seen in all large cities, and which is due to occasional milk or food contamination, or to contact. It should be employed in the case of each member of a family or household in which a case of typhoid arises. It is of inestimable value in the prevention of the spread of an epidemic through a community, as has been shown recently.

By this method alone can the individual protect himself against infection, for, while legislation in some States and communities affords practically satisfactory protection through the virtual elimination of the disease, such legislation is not uniform in different States and communities, and there is no national control over the health of the civic body, so that in travel one is almost certain to become exposed at some time to the infection.

I may close with the remark that the immunity which three injections of the antityphoid vaccine now in use confer is equal to and identical with that conferred by an attack of the disease, and that it can be obtained without danger and practically without the likelihood of distressing symptoms of reaction.

Treatment of Pulmonary Tuberculosis.—C. Berthelon, at a meeting of the French Society for the Scientific Study of Tuberculosis (*Presse médicale*, October 9, 1912), advocated the administration by endotracheal injection of full doses of anti-tuberculous sera—five c. c. of Maragliano's serum or ten c. c. of Marmorek's serum. Although subcutaneous use of sera had given rise to severe toxic phenomena in his experience, the intratracheal method proved entirely safe. The administration of sera by rectum, likewise recommended for the purpose of avoiding intoxication, is less effective from the therapeutic standpoint in lung tuberculosis than the endotracheal procedure, which gives results as good, if not better, than a subcutaneous injection.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXX.—How do you treat subacute and chronic laryngitis? (Closed January 15th.)

CXXXI.—How do you treat psoriasis, and with what success? (Closed February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. Ben N. Wade, of Portland, Oregon, whose article appeared on page 244.

PRIZE QUESTION CXXXIX.

THE MANAGEMENT OF CHRONIC ULCERS OF THE LEG.

(Continued from page 302.)

Dr. E. P. Regan, of Stillwater, Minn., writes:

Like many other conditions confronting the medical man, this is but a symptom, due to a multiplicity of causes and should be treated as such. Realizing the importance of alcohol, syphilis, auto-toxemia, and faulty hygiene, we accept these as predisposing factors. We also must consider the abnormal action of the various organs and glands, the kidneys, liver, and pancreas. The effect of uterine displacement, or engorgement, of enteroptosis, prolapsed kidney, etc., in the female are predisposing causes.

The exciting cause is usually traumatism. In general the treatment should begin with a careful inquiry as to the existence of any of these elements. Alcohol should be prohibited as far as possible, as its effect on the liver is to make for engorgement, at least primarily, with its tendency secondarily to venous stasis below. Syphilis must be combated by appropriate specific treatment; autointoxication by revised diet, elimination, and intestinal sepsis. The daily use of sulphate of magnesia with lemon juice will in appropriate doses prove an admirable eliminant. The same remedy in the proportion of one ounce to the pint of hot water applied as a bath will aid the skin to renewed activity.

As this is essentially a trophic nerve disorder, the entire nervous system should be looked after. Appropriate tonics as strychnine, arsenic, quinine, etc., are called for. Hypernutrition should be met with by a restricted diet, and the poorly nourished fed to the limit of nutrition.

Locally, in the overfed plethoric individual, the ulcers are likely to present exuberant granulations with copious secretion of pus. In such instances, we curette the ulcer thoroughly under ten per cent. cocaine and irrigate with normal salt solution twice daily. When the granulations are reduced, the application of moist dressings of one to 500 potassium permanganate will usually produce marked action toward healing. Following this, the application of a powder of

Iodoform, ...	1.00 parts;
Bismuth subgallate, ...	10.00 parts;
Methylanimoxybenzoate, ...	4.00 parts;
Zinc oxide, ...	15.00 parts;

will soon form a crust under which the newly formed skin begins to spread from the edge of the ulcer. The crust, if formed, should not be removed, but allowed to remain as a roof for the new skin.

Asthenic patients require also a stimulating application. Silver nitrate, five per cent., once daily is efficient. The powder as stated will usually benefit this type very quickly.

The Bier hyperemic treatment applies to this class, especially as a larger supply of blood locally is required for nutrition. The high frequency current is very useful in both types.

I have had very little trouble in healing these cases with the treatment outlined. Relapses are usually traced to new traumatism or to the impossibility of controlling the predisposing factors. These applications must be followed by the orthodox pressure dressing, *not* the rubber bandage, but the elastic wool or cotton roller, carefully applied. Beginning at the foot it must be carried to the knee in order to support enlarged veins. At times the blood pressure must be considered; results are certain.

The permanence of the improvement depends largely on the personal equation. Too often these cases prove to be the *bête noire* of the medical attendant.

Dr. R. H. Carr, of Water Valley, Miss., directs:

1. *Simple ulcer.* Cleanse thoroughly with soap and water. Apply silver nitrate stick, wash off with normal saline solution, wipe dry, and apply balsam of Peru and castor oil, equal parts. I employ this treatment every day until the ulcer presents a healthy appearance. If this does not prove beneficial in a few days I apply scarlet red ointment to the edge of the ulcer and allow to remain twenty-four hours, when I apply balsam of Peru and castor oil for twenty-four hours. I continue this treatment until I get a healthy granulating surface. All treatment is now discontinued with the exception of tincture of iodine, two per cent., which is applied once daily to prevent reinfection.

2. *Varicose ulcer.* The treatment mentioned for simple ulcer usually proves beneficial in that it causes it to heal, only to break down in a few days or weeks unless the vein that is feeding the ulcer is removed surgically. When this cannot be done a tight fitting bandage should be worn constantly to support the veins.

3. *Tuberculous ulcer.* I usually administer tuberculin B. E. (concentrated), the initial injection being 1/20,000 mgm., which dose is increased

by ten per cent. every seven to ten days. The patient is watched carefully for a reaction. In connection with this tincture of iodine is used locally, alternating with scarlet red ointment, five per cent. Ulcers that do not yield to this treatment are thoroughly curetted under quinine and urea anesthesia, all cicatricial tissue having been removed, and then cauterized with pure carbolic acid. The wound is washed with absolute alcohol.

If the ulcer is the mouth of a sinus leading down to a tuberculous osteomyelitis I inject bismuth paste every four or five days till six injections are given. After these injections have been given and the lesion continues to discharge pus, I make an incision down to the focus of infection and remove the necrosed bone, under ether anesthesia.

4. *Syphilitic ulcer.* I prefer mixed treatment of mercury bichloride, gr. 1/16; potassium iodide, grs. v; compound syrup of sarsaparilla, two drachms in water three times a day after meals. I cauterize the ulcer every other day with silver nitrate in water and apply twenty per cent. calomel ointment daily. If the patient is not benefited by internal treatment I usually give the following:

Mercury salicylate, ...grs. xlviii;
Liquid petrolatum, sterilized, ...3i.

Ten minims of this solution is injected deep into the gluteus muscle every two weeks for the first year. I have also had good success with salvarsan 0.4 gramme intravenously, the injections being repeated at intervals of six or eight weeks.

5. *Typhoid ulcer.* Cauterize with carbolic acid, wash with alcohol, and apply balsam of Peru and castor oil, equal parts, to stimulate granulations. I use this about one week, then apply scarlet red ointment as in the treatment of simple ulcer. If no improvement is noticed at the end of two weeks I thoroughly curette under quinine and urea anesthesia and remove all cicatricial tissue, then reapply scarlet red ointment.

Dr. Richard Leiman, of Detroit, observes:

In treating chronic ulcers of the leg, my first efforts are to subdue any inflammation which may be present, remove all causes of sepsis, improve the circulation, promote absorption of the induration, stimulate granulation, and encourage cicatrization. The parts are rendered aseptic by thorough washing and sterilization with chemicals, as usual; and nothing is so essential to my success in treatment as the complete maintenance of aseptic conditions.

The circulation is improved by rest in bed, by elevation of the part, and by pressure of bandages when there is venous congestion. Sometimes the elastic pressure of a pure rubber bandage, properly applied and worn while the patient is up, is all that is necessary to obtain a cure. Some need no further treatment than echinacea, applied on gauze, and given internally in half drachm doses, three times daily.

In other cases it is necessary to stimulate granulations by a very light application of silver nitrate, ten grains to the ounce of water; or, better still, and what I mostly use, is a twenty-five per cent. balsam of Peru ointment, applied freely. Sometimes I alternate every other week with a twenty per cent. ichthyol ointment. Ointments of zinc

oxide and boric acid are merely protective and suited to cases in which the granulations are healthy.

Internal remedies are chosen according to the condition of patient. I rarely omit echinacea, as I get good results, both in specific as well as other cases. Sometimes it is necessary to give the iodides and the protoiodide or some form of mercury. Cacodylate of sodium is useful, and, in anemic cases, I use a hypodermic medication of iron citrate and sodium arsenate. Sometimes strychnine is added for its stimulating properties.

For aiding digestion and encouraging appetite, I give

Tincture nux vomica, ...3ii;
Tincture cinchona compound, }
Tincture gentian compound, . } āā 3iii.

Sig.: One drachm before meals.

Peristalsis is also promoted by this mixture, but I always give calomel, followed by saline, every ten days.

In plethoric people I do not give iron, nor the nux gentian mixture; but prefer the magnesium sulphate treatment.

The foregoing treatment I have used with good success in ordinary cases. Occasionally, however, when there are deep induration, extensive infiltration, a high degree of inflammation, offensive odor, and a persistence against all treatment, extreme measures are taken, viz.: Curette and cut away all diseased tissue; sometimes resect the distended veins, dust on a little cupric sulphate or drop saturated solution of magnesium sulphate on the ulcer at about 110° F. Continue for six hours and rest four hours. I sometimes use pure balsam of Peru or ichthyol during interval of irrigation and following. Skin grafting may be done when the area is large.

A mildly antiseptic dusting powder every three or four days will certainly add to the patient's comfort, and possibly aid the process of repair. Tincture of iodine painted on occasionally will hasten granulations. Rest in bed, plenty of fresh air, and good food must not be overlooked. Wet dressings of a weak sodium bicarbonate solution are useful in mild cases.

(To be concluded.)

Therapeutical Notes.

Epidural Injections during Labor.—M. de Kervily, in *Presse médicale* for September 25, 1912, states that he has obtained gratifying results, both in normal labor and for dilatation and curettement of the uterus, with anesthetizing epidural injections of cocaine hydrochloride in one per cent. solution. He employs either an ordinary hypodermic needle, 2.5 cm. in length or, for stouter patients, a needle 5 cm. long. After cleansing the skin over the sacral region with alcohol, the needle is introduced into the sacral canal obliquely from below upward and forward, and an injection of 0.5 c. c. of the cocaine solution (0.005 gramme of cocaine) is made. The pain attending labor is so reduced that little or no complaint is made by the patient. The dose above mentioned acts as well as one three times as large, and as the effect wears off in fifty minutes, repeated

injections are given, at the patient's own request. No unpleasant effects, either during or after the injections, were noted. Labor seemed to be accelerated rather than delayed and excessive voluntary "bearing down" efforts on the part of the woman, due to the pain, are quieted. The physical and nervous fatigue attending labor is reduced to a minimum. De Kervily considers the procedure well suited for current use in practice.

Rectal Feeding by the Drop Method.—H. M. Eberhard, in the *American Journal of Gastro-Enterology* for July, 1912, calls attention to the drop method in rectal feeding as an advantageous substitute for the ordinary procedure. Obstacles to the usual method, such as early expulsion of the enema and complaints of soreness due to the frequent passage of the tube, are thereby largely avoided. He has used the "drop" procedure in over 150 cases, and found that some patients can retain as much as three litres of milk and from eight to ten eggs a day. Few object to this method of feeding.

The following combinations are mentioned by the author as having given the best results:

I.
Peptonized milk, ...9 ounces; }
Whites of three eggs; } 264 calories.
Table salt, q. s.

II.
Warm milk, ...9 ounces; }
Yolks of two eggs; } 310 calories.
Grape sugar, ...one drachm;
Table salt, ...0.5 drachm.

III.
Warm milk, ...9 ounces; }
Two raw eggs; } 314 calories.
Table salt, q. s.;
Essence of pepsin, ...one drachm.

The last named combination is best prepared by first heating the milk to about 98° or 100° F., then beating the eggs, salt, and pepsin together, and lastly adding the milk and beating again until the mixture drops readily. Two raw eggs in one pint of normal saline solution, yielding 140 calories, also constitute a good enema.

Since the mixtures containing both milk and eggs tend to become gummy unless kept continuously warm, it is necessary to use a double can during the process of feeding. The inner receptacle, for the milk mixture, has a small tube projecting from its bottom and passing through the outer tank, in which water at 110° to 115° F. is placed. The remainder of the apparatus is the same as is used for saline enteroclysis, and the flow is regulated to a drop a second.

In order to keep the bowel tolerant, it should be cleansed daily with warm saline solution.

The drop method was found very useful either as the sole source of nutriment or as an auxiliary in acute gastric inflammations with persistent vomiting, after gastric hemorrhage, in gastric hyperesthesia, in esophageal or pyloric stenosis, in the vomiting of pregnancy, in advanced gastric carcinoma, etc. In pulmonary tuberculosis, or chronic renal or cardiac disease, with pronounced wasting, the procedure is an advantageous supplement to mouth feeding. In cases with bleeding hemorrhoids it is also useful.

Treatment of Acute Coryza.—Garel, in *Archives générales de médecine* for July, 1912, is credited with the statement that for the "abortion" of a cold, the inhalation for five minutes, three or four times daily of a boiling solution of hydrogen peroxide, preceded by the application of two or three drops of a one to 1,000 epinephrine solution to the mucous membranes, constitutes an effective measure. Atropine sulphate in the dose of 0.25 milligramme, morning and evening, will antagonize the excessive flow of secretions.

Hayem has advised that a few drops of the following mixture be placed on blotting paper and the fumes inhaled for a few seconds:

R Phenol, ... }
Ammonia water, ... } of each 5 grammes;
Alcohol, ... } 10 grammes;
Distilled water, ... } 15 grammes.
M. ft. solutio.

Some caution should, perhaps, be exercised in the use of the foregoing preparation, as Moldenhauer has shown that caustic inhalations favor ear complications.

In overcoming nasal obstruction, the following snuff gives good results:

R Cocaine hydrochloride, ... }
Menthol, ... } of each 0.3 gramme;
Roasted and powdered coffee beans, ... } 1.0 gramme;
Boric acid, ... } 10.0 grammes.
M. fiat pulvis.

In this preparation the menthol prolongs the effects of the cocaine, while the coffee is introduced to make the powder more palpable and more easily inhaled.

Another useful combination is:

R Menthol, ...0.5 gramme;
Ammonium chloride or phenyl salicylate, ...2.0 grammes;
Boric acid, ...8.0 grammes.
M. fiat pulvis.

Since the swelling of the mucous membranes renders the snuffing up of the powder difficult, the patient will find it advantageous to use a piece of rubber tubing about twenty cm. long; the powder is placed in it at one end, and air blown through from the other end by the mouth.

Spraying the membranes for a very short period with a one or two per cent. cocaine solution gives good results, but the toxicity of the drug is to be remembered. A better procedure is to apply two or three drops of a one to 2,000 or 3,000 solution of epinephrine with a camel's hair brush. Unna has recommended the following combination for brief spraying into the nose:

R Ichthyol, ...0.5 gramme;
Ether, ... }
Alcohol, ... } of each 50.0 grammes.
M. fiat solutio.

It is probably safer, and equally effective, to use a one to thirty solution of menthol in liquid petrolatum. A spray of 0.2 or 0.4 per cent. antipyrine may also be used, preferably preceded by cocaine.

Where the lips or nostrils become irritated and inflamed, the following ointment is advised:

R Cocaine hydrochloride, ...0.5 gramme;
Tannic acid, ...5.0 grammes;
Rose water ointment, ...20.0 grammes.
M. ft. unguentum.

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PREVENTABLE NOISE IN HOSPITALS.

In his interesting address delivered before the congress of clinical surgeons in New York, Dr. George W. Crile (NEW YORK MEDICAL JOURNAL for November 16, 1912, p. 1032) set forth the advantages to the patient by "blocking off" the sensory nerves which, even under general anesthesia, convey a certain amount of shock to the brain cells. But the injection of local anesthetics along the nerve routes leading to the brain centres from the seat of operation is only one detail of the whole method of what Doctor Crile termed anoci association. Not only does he protect his patients from harmful impressions on the operating table, but does so by giving them better, more thoughtful, and more considerate attention both before and after the operation. Doctor Crile takes the ground that even the whims of the patient are not to be disregarded, as his comfort and mental status have a strong bearing on the physical well being. It costs more for nurses to give this detailed attention which takes into account the individual wishes of the patient, but the hospital statistics indicate that the result amply justifies the expenditure by lowering the mortality after operations.

All must agree with Doctor Crile in believing that the comfort of the patient is an important factor in his welfare, and it is undoubtedly one which

has hitherto received too little consideration. On the matter of noises particularly, the average hospital management is woefully at fault. There is much unnecessary ringing of gongs and bells, much avoidable loud talking, much useless clatter of dishes, and tramping of feet. In one institution the arrival of each particular visiting surgeon is announced to the staff by the shrill blasts of a steam whistle, each surgeon receiving a specified number of blasts to the extreme annoyance of all the patients whose rooms open toward the steam plant. The same steam whistle also calls the ambulance surgeon. The serving pantries on each floor are generally perfect bedlams of noise and clatter. All this is objectionable and even harmful.

The patient recovering from the effect of an anesthetic not infrequently suffers from hyperacusia, so that the clatter of dishes in a nearby pantry sounds like the rattle of small arms and the tramp of heavy boots across the floor to the affrighted ears of the patient struggling back to consciousness seems like the fateful rumble of heavy artillery. When the steam whistle shrills forth, just outside of his window, the patient at this stage receives a shock which is entitled to a more serious name than mere discomfort. In the matter of light also many patients suffer exceedingly from excessive glare, and would welcome a dark bandage or darkened room to relieve their tired eyes.

Here is a field in which much can be done without great outlay of either time or money. The barbarous steam whistle should be banished, not only from the hospitals, but from the city altogether, along with the useless ringing of bells. Electric flashes, such as are used on telephone switchboards, could be substituted in most cases for the electric call bell. Doctors, nurses, and attendants should be required to wear rubber heeled shoes. Loud conversation should be interdicted at all times within the limits of the hospital, and the clatter of dishes relegated to subterranean regions, out of possible hearing of the patient. All these factors in anoci association are within the reach of every hospital management and in many hospitals they urgently require attention.

THE BATTLE OF MEDICINE.

Many a time we have used the word "fight" in speaking of efforts being made for the health of individuals and of communities. The consumptive makes a fight for his life and in these days often wins a victory; so, too, the victim of cardiac or of renal disease. Not yet, however, is the same success attained in the struggle against cancer. Epidemic diseases quickly pass beyond the power of

the individual attacked and the physician becomes the contestant. That he enters the field at the risk of his life and voluntarily is not always recognized. True, like every soldier, he is paid in money. Otherwise physical powers, in these days of the high cost of living cannot be maintained. But who shall say that any soldier, be he medical or martial, is ever fully paid for the sacrifice of life or limb or health, in the cause of a great principle or the preservation of the lives of his fellows? . . . It was a pleasure therefore to note in the *Chicago Tribune* a recognition of the valor of some of our American heroes.

In the United States Public Health Service Corps there are 135 medical men. Note those who have contracted disease in the daily discharge of their duties in studying and combating disease. Murray and Bratton were killed by accidents while on quarantine duty during the yellow fever outbreaks, accidents directly incident to their work. Seventeen have contracted yellow fever on quarantine duty, Carter, Cobb, Wasdin, Fricks, Berry, Rucker, von Eszdorf, Goldberger, Richardson, Parker, Guthrie, McKeon, Glozier, Waldo, Groenvelt, McAdam, Weightman; of these the last five died. Eleven contracted tuberculosis and three of them have died of it, Prochazka, Decker, and Devan. Four have caught amebic dysentery while on duty in the Philippines and one of them is permanently disabled. From direct exposure on the field or in the laboratory, five contracted typhoid fever and two of them have died, Richardson and Miller. Two caught smallpox, one typhus fever, and one cholera, while one died not long ago of the Rocky Mountain fever, which he was studying.

It is a pleasure for us to be able to record our appreciation of their devotion to duty. Other nations have their medical corps, England, France, Germany, Japan, and many another, who are fighting just as bravely. It means much to the world that smallpox is everywhere hemmed in within the closest limits; that yellow fever can never again be so powerful that only a "shotgun quarantine" can avail to check its progress; that typhoid fever can never repeat the ravages of the Spanish-American and Boer wars; that tuberculosis must eventually yield to the health measures adopted against it.

While we give due praise to these men who are so bravely fighting in the front of scientific advance, let us not forget the more humble general practitioner, who often risks his life and not rarely loses it. How many a man treating an infection infects his own hand. How often a physician wearied by his day's work falls before the onslaughts of his patients' pneumonia germs. Many a busy man, thoughtful only of his duty to his suf-

fering patients, strains heart muscle or urinary tubules and falls a victim to his devotion; rarely is the danger thought of at the time.

Many a lesson might be drawn from the parallel between physician and soldier. The soldier's success depends on physical health, clear brain, keen eye, steady hand, trained muscles, ability to act promptly in emergencies; in these and in many other characteristics it is easy to trace the similarity. It may be useful for us physicians to note these points and make them our own.

FRIEDMANN AND HIS REMEDY.

Friedmann's first announcement of his discovery of a new remedy for tuberculosis in the *Berliner medizinische Wochenschrift* for November 18, 1912, was duly noted and abstracted in our issue for January 18, 1913. Since then we have not adverted to the remedy despite the space devoted to it in the newspapers, for evidence *pro* and *contra* of any scientific value has been lacking. The analysis of Friedmann's assertions, which we present in this issue of the JOURNAL, will place our readers *au courant* of the dispute; the original statements were modest enough, and it is difficult to understand the extraordinary excitement they have caused. We hope that eventually Doctor Friedmann will emerge from the discussion with an unsullied record, as becomes a physician and a man of science whom no thought of gain could persuade to exaggerate the importance of his discovery.

THE PROGRAMME OF DOCTOR WILEY'S SUCCESSOR.

The first public address of the new chief of the Bureau of Chemistry of the United States Department of Agriculture, Dr. Carl L. Alsberg, was made, appropriately enough, at the annual meeting of the Association of Manufacturers of Medicinal Products, held during the week in New York. In view of the fact that Doctor Alsberg is a graduate in medicine and has specialized in physiological chemistry it is quite natural that in announcing his programme of action he should lay special emphasis upon that aspect of his duties which has to do with the supervision of the quality of drugs and medicines. The medical profession will be glad to learn that the bureau will take energetic action under the Sherley amendment, giving authority to suppress the traffic in those nostrums which make exaggerated claims of curative qualities. Already, so we learn, a great quantity of foreign nostrums have been excluded from our markets through the

application of this act. Nostrums making false statements as to curative value on the wrapper or label will, we are assured, be excluded from interstate commerce, but there seems to be no way, except possibly through the postal authorities, to prevent the making of these assertions through newspaper and other advertisements. The new chief accentuates the importance of the Harrison bill governing interstate commerce in narcotic drugs which was referred to in these columns for February 8th. Under this law, it will be remembered, the physician as well as the pharmacist would be required to register annually with the United States Bureau of Internal Revenue.

ANTITYPHOID INOCULATION.

Consideration of the statements of Major F. F. Russell, which we present on page 351 of this issue of the JOURNAL, leads us to the conclusion that antityphoid inoculations should at once be applied to one source of residual typhoid, namely, in the control of milkborne infections. Time and again it has been found that large outbreaks of typhoid fever were due to infected milk consumed raw. Arrangements might therefore be made with the Department of Health to practise antityphoid inoculations on the dairymen and all others handling raw milk, or rather milk which is to be sold raw. In this city, with its admirable control of the milk situation, all those handling raw milk of grades A and B should be required to undergo antityphoid inoculation, which would involve neither hardship nor expense. There is little doubt that this procedure would materially reduce milkborne typhoid infections. The antityphoid vaccine supplied by the Department of Health, is made according to the method employed in the army.

CANCER AND THE COCKROACH.

The *Lancet* for February 1, 1913, draws attention to the fact that two investigators have come to the conclusion that there is some connection between cockroaches and cancer. In March, 1911, the *Lancet* received a communication from Dr. W. Melville-Davison, in which the latter maintained that cancer is caused by the introduction into the body in various ways of a certain species of alga, filaments of which are found in large numbers in the bowel of several varieties of cockroach, and that infection is caused by linen or food soiled by the insect. Recently newspapers have reported that Professor Fibiger, of Copenhagen, is of the opinion that a worm in the rat passes its larval stage in the intestine of the cockroach; the rat eats the cockroach and cancerous swellings develop. The *Lancet* notes the coincidence of two observers, independently and in different countries, thus in-

criminating the cockroach as a cancer spreader, but states that before a verdict of guilty can be brought in against the insect, a good deal more evidence will have to be adduced.

HEMORRHAGE FROM USE OF AN ESMARCH BANDAGE.

According to *Presse médicale* for January 25, 1913, Canaguier reported recently to the Société de médecine of Le Mans that in operating for acute osteomyelitis on the femur of a girl of twelve years—not a “bleeder”—a curious accident occurred. Twice, immediately on placing the Esmarch bandage about the root of the thigh, severe hemorrhage ensued, to cease suddenly with the removal of the bandage.

Canaguier, searching for an explanation, believes that although the femoral artery may have in Scarpa's triangle its normal situation and volume, there might possibly be a high bifurcation into a superficial and a deep branch, with considerable development of the latter, while the former remained relatively insignificant. Hence the bandage, acting with insufficient pressure on this exaggerated deep branch, permitted the hemorrhage. The surgeon is careful, however, to state that this is merely theory.

In connection with this unexpected hemorrhage it is interesting to learn that it was immediately controlled by the injection of artificial serum. There was considerable delay in procuring the serum, and before it was injected, twenty minutes had elapsed since the pulse had been no longer tangible at wrist or ear, and the heartbeat had become likewise imperceptible.

AN APPENDICULAR AND A DENTAL ABSCESS.

Badolle presented recently to the Société des sciences médicales of Lyons, according to *Presse médicale* for January 11, 1913, a young man who had been operated upon for a huge appendicular abscess, and in whom developed a few days later another large abscess in the angle of the left maxilla. X rays disclosed that a wisdom tooth was the cause of this second manifestation and extraction quickly resulted in a cure. Three hypotheses have been submitted concerning these phenomena: 1. The appendicitis and the infection of the wisdom tooth began in the same week by mere coincidence and without interrelation; 2. the appendicitis was the direct cause of the tooth infection, which represented a true metastasis of the former; 3. the dental infection resulted from a buccal infection which was in no way related to the appendicitis. Durand, in whose service the young man in question was treated, inclines strongly to the metastatic hypothesis because the follicle of the wisdom tooth remained closed and did not communicate with the oral cavity; if he is correct the case is of a very rare variety, for metastasis from an appendicular abscess has been seldom reported.

News Items.

The Harvey Lectures.—The seventh lecture in the course will be delivered this evening at the Academy of Medicine by Dr. Theodore C. Janeway, professor of the practice of medicine, Columbia University, his subject being Nephritic Hypertension, Clinical and Experimental Studies.

Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons.—Professor Ludwig Aschoff's lectures in this series will be given at the Academy of Medicine (New York) on March 12th and 15th. The subject of the first lecture will be Thrombosis, and of the second Contract Kidney.

Chicago Academy of Sciences.—At the recent annual meeting of this organization the following officers were elected to serve for the coming year: Dr. T. C. Chamberlin, president; Dr. George S. Isham, first vice-president; Dr. Henry C. Cowles, second vice-president; Dr. Wallace W. Atwood, secretary. Dr. N. S. Davis was appointed a member of the board of scientific governors.

Upper Mississippi Valley Medical Society.—At the semiannual meeting of this society, held in Wadena, Minn., recently, under the presidency of Dr. C. F. Coulter, the following officers were elected: President, Dr. William Reid, of Deerwood; vice-president, Dr. W. A. Desmond, of Akeley; secretary, Dr. A. W. Ide, of Brainerd; treasurer, Dr. P. E. Kenyon, of Wadena.

Women Physicians of Cincinnati Organize.—At a meeting of the women physicians of Cincinnati, held on January 28th, the Cincinnati Medical Women's Society was organized, with the following officers to serve for the first year: Dr. Nora Crotty, president; Dr. Ella G. Hunt, vice-president; Dr. Margaret H. Rockhill, secretary; Dr. Edith Smith, treasurer; Dr. Bertha Lietze, Dr. Ruth Bernheim, and Dr. Mary Tracey, members of executive committee.

Public Lectures on Medical Subjects at Harvard University.—The faculty of Harvard Medical School is giving a series of free public lectures on Sunday afternoons at four o'clock, from January 5th to May 18th, inclusive. Last Sunday's lecture was given by Dr. Hugh Cabot on the Responsibility of the Community for the Prevalence of Venereal Diseases, and on the 16th Dr. David L. Edsall will speak of the dangerous effects of patent medicines.

Plague Prevention in Manchuria.—The North Manchurian Plague Prevention Service has been established in Manchuria, with headquarters at Harbin. A hospital constructed according to plans recommended at the International Plague Conference in 1911, has been established at Lahasu, where ordinary cases of illness have been treated since October 16, 1912. The isolation hospital at Harbin, which was also constructed according to the recommendations of the International Plague Conference, has been completed and is now ready for patients.

Proposed Alliance of Economic Societies.—At a meeting of delegates from the various medical economic societies of greater New York held in the Borough of Manhattan, February 7, 1913, it was decided to present to the following societies a plan of consolidation: Physicians' Protective League of Downtown New York; Medical Alliance of New York; Physicians' Protective League of New York; Yorkville Economic League of New York; Physicians League of the Bronx; Physicians Economic League of Brooklyn. These societies now have a combined membership of two thousand physicians.

New York Physicians' Association.—A stated meeting of this society will be held at Tuxedo Hall, Fifty-ninth Street and Madison Avenue, on Thursday evening, February 27th, at 8:30 o'clock. The topic for discussion will be The Treatment of Tuberculosis. Papers will be read as follows: The Work Treatment, by Dr. E. S. McSweeney; Specific Therapy, by Dr. James A. Miller; The Care and the After Care of the Consumptive with Special Reference to New York, by Dr. Bruno Horowicz; The Sunlight Treatment of Surgical Tuberculosis, by Dr. John W. Brannan. These papers will be discussed by Dr. Hermann M. Biggs, Dr. John H. Huddleston, Dr. Alfred Meyer, Dr. Adolphus Knopf, Dr. Robert Abrahams, Dr. Edwin Riesenfeld, and Dr. George Mannheimer. All those who are interested are invited to attend.

Personal.—Dr. Leonard Hill, F. R. S., and Dr. Henry S. Kenwood, of London, have been appointed members of the army medical advisory board, the former as civilian physiologist and the latter as civilian sanitary expert.

Professor Paul Ehrlich, of Frankfort, and Dr. Emil Warburg, of Charlottenburg, have received the Royal Bavarian Maximilian Order for Art and Science.

A dinner was given to Dr. J. G. Mumford, of Clifton Springs, N. Y., by the Rochester Academy of Medicine, on Wednesday evening, February 12th. At a meeting of the academy after the dinner Doctor Mumford read a paper entitled An Adventure in Practice.

New York Physicians' Aid Association.—At the forty-first annual meeting of this association, held on January 21st, the following officers were elected: President, Dr. W. F. Mittendorf; first vice-president, Dr. W. C. Phillips; second vice-president, Dr. Joseph W. Ingalls; recording secretaries, Dr. A. Edward Davis and Dr. Edward S. Peck; corresponding secretary, Dr. W. B. Jennings; treasurer, Dr. Daniel Lewis; trustees for three years, Dr. David P. Austin, Dr. Ward B. Hoag, and Dr. Heinrich Stern. The society has between 2,200 and 2,300 members and a capital fund of over \$83,000, not including the reserve fund of \$4,000 required by the insurance department at Albany. During the year 1912 there were 37 deaths among the members, against 39 in 1911.

A Banquet to Ex-Presidents of the Chicago Medical Society.—A banquet in honor of its ex-presidents was given by the Chicago Medical Society on the evening of February 12th, at the Hotel Sherman. Dr. Jacob Frank acted as toastmaster, and the speakers were ex-presidents of the society, as follows: Dr. William E. Quine, Dr. David W. Graham, Dr. Daniel A. K. Steele, Dr. Edmund J. Doering, Dr. William T. Belfield, Dr. Frank Billings, Dr. L. L. McArthur, Dr. Harold N. Moyer, Dr. Arthur Dean Bevan, Dr. Junius C. Hoag, Dr. James H. Stowell, Dr. William A. Evans, Dr. Robert B. Preble, Dr. John B. Murphy, Dr. Charles S. Bacon, Dr. George W. Webster, Dr. Henry B. Favill, Dr. Alfred C. Cotton, Dr. John A. Robinson, and Dr. Joseph M. Patton.

Cholera.—The cholera situation throughout the world seems to be subsiding into the quiescent stage in which it usually remains during the first four or five months of the calendar year. The outbreaks which have been in progress in Japan, China, and southern Asiatic ports have for the most part disappeared. This does not include, however, those areas in southern Asia in which the disease is endemic and is present to a greater or less extent at all times. The disease has been present in various parts of Turkey in Asia, especially in Jidda and Meka. In Europe the outbreak which began in Constantinople during the early part of November continues. It has, however, not spread to any great extent so far as known. During the week ended January 6th, there were reported in Constantinople 117 cases of cholera with 62 deaths, and from the beginning of the outbreak to January 6th there had been officially reported a total of 2,459 cases with 1,208 deaths.

A Society for the Advancement of Clinical Study has recently been organized in New York, the purpose of which is to maintain a bureau of information to furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West Forty-third Street, in charge of a special clerk who will be on duty between the hours of nine and six to answer all telephone inquiries (telephone 974 Bryant). The bulletin board will consist of two sections, on one of which will be posted month by month, the regular clinics, medical and surgical, also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which as far as possible will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations and operators or clinicians, an opportunity to obtain the desired end with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York will be made more accessible to those who may desire to make use of them.

Pith of Progressive Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

December 5, 1912.

Nucleic Acid for Progressive Paralysis.—Tsiminakis reports a few cases of progressive paralysis treated by nucleic acid; from the good effects obtained this method is to be recommended, since the majority of the patients showed lasting remissions. The method, which consists of the use of a definite and quantitative chemical, has advantages over the tuberculin treatment where a most potent bacillus poison of unknown strength is used which may possibly light up a latent tuberculosis.

Benzol Treatment for Leuchemia.—B. Stein was successful in a refractory case of myelogenous leuchemia by giving benzol for forty-two days (amount and method are not mentioned), which had resisted treatment by Röntgen rays. The leucocyte count became normal and all subjective symptoms disappeared completely. This marked improvement persisted after the patient was taken out of bed and placed on arsenic.

December 12, 1912.

Repaired Gunshot Wound of the Heart.—Tedesco describes a case and shows that a gunshot wound of the heart can be successfully repaired, even in the face of defective technic and asepsis.

New Possibility of Tying Bloodvessels.—H. Bardach tried tying the bloodvessels of dogs with elastic ligatures of the finest rubber tubing. The advantage is that, notwithstanding absolutely safe cutting off of the blood supply, this ligature injures the wall of the bloodvessel only very slightly. When the ligature is removed, even after twenty-four hours, an undisturbed and immediate return of the circulation takes place.

December 19, 1912.

Bacterial Prophylaxis in Surgery.—Jaklin explains why wound infection is so rare in some clinics and common in others. The germs usually found in the outer world are as a rule very virulent and therefore are not dangerous to wounds. By the passage of these germs through a septic wound or septic organism they become virulent and capable in small numbers of infecting wounds. The wound can be protected from infection by prophylaxis. The means used up to the present time have not been altogether successful because it is difficult or impossible to remove each infective medium. The most radical and at the same time simplest bacterial prophylaxis consists in a complete abstinence from septic surgery. By this means it is possible in a simple and positive manner to effect primary union and to avoid wound infection.

Scaphoid Shoulder Blade and Its Clinical Significance as to Duration of Life.—Von Kollert illustrates his article with five drawings of the different types of shoulder blades. The scaphoid type, characterized by a concave middle border and an inferior angle lying vertically below the middle point of the spine of the scapula, is an abnormality arising in intrauterine life, the circumstances which modify its development not yet being fully understood. The congenital form remains, as a whole, the same throughout extrauterine life. The sca-

phoid shoulder blade is a sign of a congenitally inferior individual. Its possessors usually die early, therefore this abnormality is found only rarely at an advanced age. The mortality in these individuals from tuberculosis is high, the acute form of the disease predominating. There are gradation forms between the normal types with a convex median border and the abnormal form which may lead to false judgment of the case. Both typical fundamental forms are never found in the same individual in extrauterine life.

December 26, 1912.

Chronic Hypertrophic Catarrh of the Lingual Tonsil.—Z. Zografides explains the attacks of coughing similar in almost every respect to pertussis to which patients with hypertrophic lingual tonsils are subject. The stimulation of the internal branch of the vagus by pressure or internal secretion of the tonsil produces the characteristic attack. He describes ten cases and shows how very similar the clinical picture is to the attack in pertussis. He draws the conclusion that the Bordet-Gengous pertussis bacilli or their toxines enter the glands of the tongue, produce an inflammation which stimulates the coughing centre along reflex centripetal paths, and a coughing spell results. This hypothesis rests upon the observations of many authors who were able to precipitate a coughing spell in those suffering from pertussis by irritation and pressure on the back of the tongue, further upon hyperemic conditions of the upper air passages, especially the larynx and back of the tongue.

MONATSSCHRIFT FÜR KINDERHEILKUNDE.

December, 1912.

Sunshine in the Treatment of Tuberculosis.—Rollier reports excellent results with this treatment. The patients are exposed to the rays of the sun and are out of doors in the coldest weather with hardly any covering. Numerous photographs are shown of patients before and after treatment which are convincing. Bone, gland, skin, and joint tuberculosis are said to heal in a short time.

So Called Salt Fever.—B. Bendix and J. Bergmann have again taken up the subject whether or not there is such a thing as salt fever. In 1911, Wechselmann showed that the fever which appeared after the intravenous injection of salvarsan could be avoided if a salt solution was used, aseptic and free from bacterial toxines. The authors believed that the fever which resulted in infants after saline injections could be avoided if a solution was used free from these toxines. A solution was used of water recently distilled and in no case were the authors able to observe a rise in temperature after injection. If the water was not freshly distilled (within a few hours), frequent rise in temperature was seen. Every infants' ward should therefore have its own distillation apparatus for saline infusions.

LYON MÉDICAL.

January 12, 1913.

Hot Air Inhalations in Treatment of Diphtheria.—R. Rendu compared the efficacy of this measure with that of antitoxine by treating one half of a series of sixty-six cases with hot air—omitting antitoxine—and the other half, consisting

of exactly comparable cases, with the specific serum. The apparatus used was a small electrical drying instrument, similar to that employed by barbers and consisting essentially of a vane which drives air over a red-hot wire. This heated air was conveyed to the mouth by a flexible metallic tube, to the extremity of which could be attached brass tubes of varying diameter, covered by a cork cylinder in order to avoid burning the lips. The highest temperature reached by the air supplied in the apparatus was 150° C., but 110° C. was about the highest point attained in treating the patients. The method followed was either to raise the temperature until there was evidence of discomfort, then at once turn in cold air, and a little later resume the heated air, or more frequently, to withdraw the tube from the mouth when the uncomfortable degree of heat was reached, reintroduce it one half minute later, and so on four or five times, the temperature constantly increasing and the duration of each application decreasing. In adults and adolescents the tongue depressor was used, and the jet of hot air carried directly over the various areas covered with false membrane. The procedure is not painful, is well borne by children, and never produced a burn or other complication. The average number of applications was only four or five, distributed in a period of three or four days. As for the results, the mortality due to diphtheria in the air treated cases was the same as in those receiving antitoxine, i. e., fifteen per cent. The membranes disappeared and the temperature fell with equal rapidity and the incidence of paralysis was the same, viz., nine per cent. While this seems to show the air method and antitoxine to be of equal value, the author advises substitution of the former for the latter only under certain circumstances—diphtheria in a tuberculous patient, or in one who has previously had injections of horse serum, and believes that in all ordinary cases the methods should be combined, since they are complementary, the hot air being chiefly a bactericidal agency, while the serum is chiefly antitoxic.

PRESSE MÉDICALE.

January 11, 1913.

Congenital Stenosis of Rectum.—P. Reclus asserts that rectal stenoses are of congenital nature more frequently than is usually thought. The characteristic lesion is a crescentic fold of mucous membrane presenting a sharp margin and forming a diaphragm across the rectum, usually about three, but occasionally five, six, and even seven cm. above the anal orifice. In many instances there are associated with it dry, often multiple fistulæ, the external openings of which are sometimes hidden under the bases of condylomata; these fistulæ are likewise congenital, and are lined with heavy stratified epithelium. The functional disturbances arising from this condition appear, as a rule, only relatively late in life—in the author's six cases at ages ranging from thirty to fifty-two, respectively. The diagnosis is often made difficult by a coexisting proctitis, the resulting infiltration of the mucous membrane rendering obscure the sharp margin of the valvelike fold. The treatment advised by the author consists of anesthetizing the parts through

a narrow rubber tube with novocaine-epinephrine solution, of gently and very gradually dilating the stenotic fold with the fingers, and finally with Hegar's sounds, in several sittings, and also of loosening the valve margin by means of small incisions with a bistoury passed in along the finger. In the two cases thus treated which the author has been able to follow up the cure has been of long standing.

SEMAINE MÉDICALE.

January 15, 1913.

Malignant Growths in Workers in Synthetic Dyes.—S. G. Leuenberger, comparing the incidence of cancer of the bladder in workers in dye-stuffs at Basel, Switzerland, since 1861, with that of the citizens in general, found the condition thirty times more frequent in the former than in the latter. The first symptom noted was usually vesical tenesmus, which came on at a stage when lesions were hardly visible microscopically. This would suggest irritation of the mucous membrane as the primary etiological factor. The growths later observed were either papillomas or solid cancerous neoplasms, rarely sarcomas, and were always of a high degree of malignancy. In most instances the condition developed only after many years had been spent in the factories, and sometimes it occurred when the individuals were no longer exposed—a point of resemblance to x ray cancer. These two forms of malignancy, considered in conjunction with those of chimney sweepers and of workers in paraffin, tend to show that cancer may actually result from chemical or physical irritation, and that even if the truth of the parasitic theory of cancer should be demonstrated in the case of certain tumors, it cannot apply to all. Notwithstanding the stringent enforcement of prophylactic measures in the Basel factories, vesical cancer has not yet ceased to occur. Early diagnosis by cystoscopy, and operation in the initial stage, constitute the best means of control now available.

BRITISH MEDICAL JOURNAL.

January 25, 1913.

Report of the Work of the Radium Institute.—A. E. H. Pinch summarizes the results of the radium treatment of 578 cases. Epithelioma if flat, superficial, and accompanied by little or no ulceration yields satisfactory results. The results are also quite good in the ulcerating forms, but require much longer treatment and leave considerable scar formation. Treatment of epithelioma of the mucous surfaces, on the other hand, is usually disappointing, though some temporary relief may follow. In inoperable carcinoma of the uterus radium will often bring about results which cannot be obtained by any other mode of treatment, checking the rate of growth, or arresting it, and in some cases even converting the case into an operable one. In cancer of the rectum radium relieves the symptoms and usually retards the rate of progress. In carcinoma of the breast also there are encouraging results, especially in the sclerotic forms of growth. Of all forms of malignant disease rodent ulcer is by far the most amenable to the action of radium. Superficial nævi are usually quite successfully treated by radium, as is also the case with the cavernous

forms. Keloid responds with most admirable results. Parotid tumors are also particularly amenable to treatment, even when malignant. Lichenification of the skin and some forms of pruritus are quickly cured, while psoriasis is also cured, but shows a tendency to later return. Lupus vulgaris does not respond to radium as well as it does to Finsen light. Lastly, the drinking of solutions of radium emanation is frequently very beneficial in arthritis deformans.

LANCET.

January 25, 1913.

Etiology of Endemic Goitre (Lecture II).—

Robert McCarrison deduces two main facts from the study of the geological relations of the soil to goitre: 1. The disease appears to show a preference for certain soils; 2, it may, nevertheless, prevail on soils of any geological formation. Experiments on healthy human beings yielded the following results: 1. Of thirty-six individuals who consumed the untreated suspended matter obtained from a notoriously goitre producing water, there was no clinically demonstrable change in the size of the thyroid gland in twenty-one cases, in ten developed noticeable enlargement of the gland, five showed transitory enlargement; 2, of thirty-one who consumed similar suspended matter which had been previously boiled, none showed any enlargement of the thyroid. From this series of experiments and from the analysis of all of the known facts with regard to the etiology of endemic goitre, McCarrison concludes that the disease must be due to some living excitant which exists in greatest abundance in the deposit at the bottom and sides of water channels, tanks, wells, and other receptacles of goitre producing water. Bircher's experiments on rats also show the presence in suspension in goitre producing waters of a living agent, which is the direct or indirect cause of the disease. Further experiments show that soil is also a vehicle of the *contagium vivum* of goitre. In addition to the conclusion that water and soil provide the general source of contagion in endemic goitre, McCarrison feels that we should recognize the probability of other sources of infection and not adhere slavishly to the water theory only.

Hypertrophic Stenosis of the Pylorus in Adults.—H. G. Barling reports two cases of simple hypertrophic stenosis in adults in whom there was total absence of other gastric abnormality. He raises the question as to what becomes of the hypertrophic condition which is occasionally encountered in children. On the theory that the condition found in his two adults was possibly an exaggeration of the earlier condition, he investigated their past histories, but without finding any evidence to suggest the previous existence of any similar trouble in childhood or infancy.

Pathogenicity and Virulence of Bacteria.—F. H. Thiele and D. Embleton draw the following conclusions as a result of work of their own and a study of previously observed facts: 1. Ferments form an important normal mechanism of defense against bacterial invasion. The ferments which perform this important function are the normal

panenzyme, the slightly differentiated specific enzyme, the thermolabile specific coenzyme or amboceptor, and the thermostable specific coenzyme or amboceptor. The last two increase and accelerate the action of the ordinary enzyme. The action of the ferment is to bring about proteolytic digestion of the bacteria. 2. Exotoxines and endotoxines are bacterial protoplasm and are not primarily toxic *per se*, but only become so when acted upon by the ferments. 3. The action of the ferments on the bacterial protoplasm is to produce toxic early proteolytic digestion bodies. These bodies, beside being toxic to the animal, are also aggressive in the sense of Bail, that is, they are antiphagocytic. 4. The action of this toxic substance, beside being aggressive, is to produce, in large amounts, death; in lesser amounts, fall of temperature; in small amounts, fever. This substance is the cause of death in all bacterial infections. 5. The virulence of a bacterium is dependent upon the power of exuding around itself a zone of its cytoplasm, which remains in position and acts as a protective shield. The production of a zone of ferment equilibrium in this shield protects the bacterium itself from the penetration of the ferment. The shield thus acted upon is also aggressive to phagocytosis. 6. Pathogenicity is due to (a) the virulence of the bacterium, and (b) the relative activity of the ferment to the bacterium. Thus we should say that immunity is due to ferment action and phagocytosis—that is, it is cellulohumoral.

The Jugular Pulse.—H. W. Verdon explains the *c* wave as resulting from recoil of the ascending limb of the arch of the aorta at the termination of the sphygmic period, this recoil producing a wave in the adjacent superior vena cava. The *y* depression in the jugular wave is due to a momentary fall in endocardiac pressure secondary to the relaxation of the wall of the right ventricle. The *x* depression is the mark of the fraction of time at the close of ventricular systole and when another period is beginning, that of ventricular diastole. The *v*, *a*, and *c* waves represent processes in the cardiac cycle which are not essential factors in the maintenance of the circulation, but the solitary jugular wave, upon which these are engrafted, is due to processes which constitute the essential forces of the circulation. The positive curve of the venous pulse is coincident with the negative one in the arterial and is due to the neutralization of the diastolic endocardiac negative pressure by the inrush of blood and the transition to an endocardiac positive pressure. Similarly the descending jugular wave is synchronous with the ascending arterial wave, and is due to a sudden creation of negative pressure in the superior vena cava by the cardiac systole.

BOSTON MEDICAL AND SURGICAL JOURNAL.

January 30, 1913.

Seventy-six Operations in which Lane Bone Plates were Used.—Willard Bartlett reports that he has used the Lane method of treating fractures on seventy-six patients, most of whom left the hospital alive and in better shape than when they entered. Many walked out in full health, without dressing, splint, or crutch, but some were removed

in the original cast and dressing at the end of one week or longer. He has been able to trace thirty-eight of these patients so as to determine the final result. Among the thirty-eight that were traced, there were twenty-two simple and sixteen compound fractures. Of the latter, twelve were fresh or granulating when the plate was introduced, while four were suppurating. The plates had to be removed in four of the cases of simple fracture, and in nine of the compound. Seven of the thirty-eight results he considers to be failures; three of these patients died, and in two the limb had to be amputated later for reasons that were apparently not connected with the operation. The remaining thirty-one cases were pronounced successes. A brief description is given of each case, with particular attention to detail in those in which the result was unsatisfactory. The average time between the operation and the final report in these cases is ten months; the longest interval twenty-nine months; the shortest, two months. The only indication for this operation that stands out prominently above all others, in his opinion, is a *functional defect*, either proved in an old case or predicted with reasonable certainty in a recent one. The patient's occupation must influence the choice of a therapeutic procedure. In addition, an open operation may be thought desirable when a leg patient must be got out of bed early; in old cases of non-union or extreme malunion; in all fresh, widely open fractures if shock is past; in chronically infected cases in which the bones lie bare. No open operation is justified in the treatment of recent fractures unless ideal approximation is to be obtained; this means that all the fragments must dovetail perfectly. Finally the writer is inclined to believe that extreme discrimination should be the rule in choosing subjects for the open fracture operations.

Unilateral Hematuria in Chronic Nephritis.—

P. E. Truesdale reports two cases of this nature. The first patient was a woman, aged seventy years, in whom the onset of the hematuria was insidious, without assignable cause, unilateral, persisted for seven months, and was not controlled by medical treatment. Nephrectomy was finally performed. The kidney was found to be in a condition of chronic interstitial nephritis with fatty degeneration and arteriosclerosis. The second patient was a man, aged fifty-two years, in whom the onset of hemorrhage from the right kidney led to the discovery of a condition of chronic nephritis. After persisting for several months the hematuria ceased for six months, during which time the general condition of the patient improved. Then there was a recurrence for seven months, which stopped spontaneously. On the cessation of the hematuria the amount of albumin and the number of casts diminished. This patient is still under observation. The hematuria of chronic interstitial nephritis is not easily differentiated from that due to a beginning neoplasm, especially when the kidney is normal to palpation and the urine negative except for the presence of blood. The ureters should be catheterized to determine which kidney is affected, as well as the efficiency of the other. A careful examination should be made for tumor cells and tubercle

bacilli, and a guineapig test should be made if no great risk is involved in waiting. An x ray examination should be made for calculus. After these have been excluded the nephritides of infectious origin can be eliminated by the absence of the products of infection, except such cases of chronic nephritis as were of infectious origin, but had become noninfectious at the time of the hemorrhage. Varices of the papilla may be difficult if not impossible to recognize. The final step to clear up the diagnosis is an exploratory operation. The author thinks that hematuria is more common as an early sign of unilateral chronic nephritis than is generally supposed, and that the removal of the kidney under these circumstances affords an opportunity for the study of this disease in the period of its earliest manifestation.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

February 1, 1913.

Melanotic Sarcomas Resulting from the Irritation of Pigmented Nævi.—Henry Kennedy Gaskill reports a case which shows that too much stress cannot be laid upon the necessity of extensive surgical intervention in radical cases. The knife must go deep and far and wide, as palliative treatment is worse than useless. This does not mean the removal of every nevus, but if of the distinct melanotic type it should be watched and any tendency toward change in structure or toward extension should indicate prompt and thorough surgical intervention. To save life, action must be taken early.

Antityphoid Vaccination in Children.—Frederick F. Russell calls attention to the fact that the use of antityphoid vaccine among children, although rarely noticed in medical literature, has been to him a subject of especial interest. He furnishes statistics based upon the records of the inoculation of 359 children, between the ages of two and sixteen years, who have been vaccinated by fifty different physicians in many parts of the United States. The dose in these cases is based on body weight and not on age, the child being given that portion of the adult dose which his weight bears to the average adult weight of 150 pounds. In case of a fraction, a little more, rather than less, is administered. The best time for inoculation is 4 o'clock, or later, in the afternoon, as any reaction will then appear after bedtime. No harmful effects have been reported, and none have contracted typhoid fever. Revaccination in children should be made earlier and oftener than in adults, because children are immunized on a basis of body weight, and therefore should receive a second course of two or three doses when the weight shows a material increase; since the duration of the immunity is unknown, revaccination is done after about three years; longer intervals may be permissible if warranted by further experience.

Edema and Nephritis.—A. R. Moore's further experiments apparently prove the invalidity of the colloid chemical theory of Fischer. The latter's conclusions as to edema are based on experiments with dead muscle which does not behave like living tissue. Moreover, Fischer assumes that when muscles are placed in distilled water they behave

normally, which has been proved by the writer to be untrue. The presence of acid in artificial edemas of frogs' legs is assumed by Fischer, but he offers no proof, while Moore has shown that a muscle in isotonic Ringer's solution may contain an appreciable amount of acid without swelling. Volhard has proved that the artificial edema in Fischer's experiments on the frog's leg is induced by ligating the lymphatic system, and not, as Fischer contends, by ligation of the arteries. It has been proved, moreover, that there is no demonstrable acid in the kidneys of albuminuric rabbits, and also that relatively large quantities of acid added to the kidneys do not bring about a solution of the renal proteins. Finally, the use of Fischer's treatment of edema and nephritis by unbiased physicians gives negative results or worse.

Sign Indicative of Chronic Appendicitis.—Charles D. Aaron has been able, in many cases of chronic appendicitis with digestive symptoms, to induce a referred pain or distress in the epigastrium, left hypochondrium, umbilical, left inguinal, or precordial region by a continuous, firm pressure over the appendix, which he also regards as an indication for appendectomy. The digestive symptoms are caused by pressure on the nerves which reflexly induced a perversion in the secretion of the gastric juice. The writer admits that the diagnosis of chronic appendicitis is difficult, unless there is a history of recurrent acute attacks.

Arteriovenous Anastomosis.—Bertram M. Bernheim takes issue with Coenen and Wiewiorowski as to the impossibility of complete reversal of the circulation in a limb. The writer has collected all the cases of reversal of the circulation to be found in literature, including six of his own, or fifty-two in all. Fifteen of the operations were successful, a percentage which, though small, apparently controverts Coenen's statements as to the impossibility of the procedure on physiological grounds. As a conclusive point in proof of the writer's contention that this operation can be successfully performed, he submits the latest report of one of his cases in which successful reversal of the circulation was accomplished in all four extremities of the same individual, and which he believes to be the first case to be reported when this has been done; it goes a long way toward proving that reversal of the blood current in the extremities is not a physiological impossibility.

MEDICAL RECORD.

February 1, 1913.

Newer Problems and Phases of the Antituberculosis Warfare in the United States.—S. Adolphus Knopf calls attention to a feature of the dissemination of tuberculosis that has been generally overlooked. He refers to the tuberculosis germ carrier who is not under medical care and supervision, and whose number is greater than we think. There is the patient who, although known to be tuberculous, believes that he is free from tuberculous germs because one or two examinations of the sputum were negative. In this they resemble some physicians who consider the presence of the bacillus in one or two specimens of sputum the only positive evidence of tuberculosis. To another

class belong the vast number of patients who suffer little functional disturbance or attain even an old age because an early attack has conferred upon them a relative immunity. Another group of carriers on examination show an almost normal chest and still their sputum is positive. The greatest danger arises from the bacilli carriers who are homeless. There are, again, a vast number of tuberculous patients, among all classes of society, who, knowing they are bacilli carriers, are careless in the disposal of their sputum, or become so from lack of sputum receptacles. To lessen the source of infection from these knowing and unknowing bacilli carriers the writer advises examination and reexamination for tuberculosis, including repeated sputum examinations, of every individual seeking employment, a careful physical examination of all school children and students, of the inmates of prisons and reformatories, and of all municipal and federal employees and officers, especially those of the postal service. The bearing of the high cost of living is mentioned as a causative agent, for lack of sufficient nutritious food predisposes to tuberculosis.

The Gastric Motor Functions.—Charles Sumner Fischer admits that there is a large number of gastric cases which cannot be reached by chemical reaction or mechanical device. The routine chemical and physical tests are made, and the results are bewildering. These cases which defy the test tube and the stomach tube are the *bêtes noires* of the gastrologist, and more harm than good may result from too assiduous gastrological applications. The local reactions are merely accidental manifestations exhibited in this region through remote and predisposing tendencies. These cases shatter our ideals of technic and insist for their proper understanding on the broadest possible conception of the subject of gastrology in its scientific, psychological, and sociological aspects, and command the best efforts not only of the gastrologist, but also the psychologist and the educator. Treatment consists of readjustment and reeducation and call for patience, perseverance, and sympathy, qualities foreign to those who are wedded to strict laboratory methods with whom strict material causal relationship is demanded. There must be a division of labor, if we look for the best result in gastrology, a purely mechanical side for those interested in concise, local organic conditions, and the broader philosophical side which, while not underestimating the advantages of a knowledge of local conditions, uses these latter only to obtain a proper perspective of the whole.

Hygiene for the Normal Child.—Ira S. Wile says that the purpose of teaching hygiene should be considered in dealing with methods and in making up a carefully adjusted curriculum. His plan is to consider the evolution of hygiene in an elementary school upon the basis of the evolution of society, and to arrange the information for the children so that it is adapted to their age, grade, and experience, while the course is, *pari passu*, naturally developed from a single viewpoint instead of being introduced into the curriculum without plan or thought and too frequently left to the teacher's discretion. Correlation of all the topics in hygiene

to natural history, geography, civics, and economics is of paramount importance and should not be underestimated.

INTERSTATE MEDICAL JOURNAL.

December, 1912.

Treatment of Human Cancer with Intravenous Injections of Colloidal Copper.—Leo Loeb, C. B. McClurg, and W. O. Swiek have been using a colloidal solution of copper prepared according to Bredig's formula. An average of 300 to 400 c. c. of the solution, warmed to about body heat, and slowly injected into a vein, is given daily. Usually six, sometimes seven, injections are given each week. The writers maintain that by this method a gradual retrogression of human cancer of all kinds is caused, some of the cases operated in being apparently nearly cured. When the growth of metastases is very rapid and extensive and cachexia is very pronounced this method holds out no hope. They have found that many cases of human cancer are more amenable to this mode of treatment than are rapidly growing mouse cancers. They conclude that their experiments prove that there is no essential difference between human cancer and the cancer of rodents.

JOURNAL OF EXPERIMENTAL MEDICINE.

December, 1912.

The Chemistry of Blood Serum.—A. A. Epstein finds that the most striking feature is the extensive variation of the serum in relation to its proteins. It was found that in certain diseases the globulin fraction is markedly increased, whereas the total protein of the serum may be normal or may fall far below normal in amount. These diseases are: 1. Cardiac diseases associated with decompensation and serous effusion; 2, pulmonary or respiratory affections of inflammatory or noninflammatory origin; 3, diabetes mellitus; and, 4, parenchymatous nephritis. In the serum of chronic parenchymatous nephritis the increase in the globulin content is most pronounced and may constitute nearly all the protein, or as much as ninety-five per cent.

Effects of Stimulation of Two Vagus Nerves.—A. E. Cohn finds that there is usually a great qualitative difference in the action of the two vagus nerves on the heart of the dog. Stimulation of the right vagus nerve in the dog usually causes arrest of all the chambers of the heart. Stimulation of the left vagus nerve exerts a moderate, negative, chronotropic effect on the auricles (variation in the rate of contraction).

Blood Destruction and Regeneration.—H. T. Kaisner and R. M. Pearce find that the erythrocytes show increased resistance to the action of hypotonic salt solutions and to specific hemolytic immune serum. They conclude that the resistance of the red cells is a concomitant of the regeneration of the blood which follows the anemia caused by the removal of the spleen.

The Pathology of Primary Splenomegaly (Gaucher Type).—E. S. Mandlebaum gives a brief review of cases previously reported, followed by an interesting account of an autopsy on a male child, four and one half years of age, suffering from primary splenomegaly. He states that primary splenomegaly of the Gaucher type is a distinct dis-

ease, related in all probability to the blood diseases. It begins usually at an early age, frequently affects several members of a family, and runs a chronic course. The clinical manifestations are pronounced hypertrophy of the spleen, subsequent enlargement of the liver, absence of palpable lymph nodes, absence of jaundice and ascites, absence of characteristic blood changes, discoloration or pigmentation of the skin, and a tendency to epistaxis or other hemorrhages. The lesions are found in the spleen, lymph nodes, bone marrow, and liver. These organs show the presence of iron containing pigment, and large multinuclear cells with a characteristic cytoplasm. In the early cases peculiar, large, phagocytic cells arising from atypical large lymphocytes are found in the follicles of the hemapoietic system. The diseases is eminently a chronic one, without any of the manifestations of malignancy. The etiology is unknown, probably some toxic agent, possibly some protozoan infection.

Insect Transmission of the Virus of Poliomyelitis.—C. W. Howard and P. F. Clark found the domestic fly to be able to carry the virus of poliomyelitis in an active state for several days upon the surface of the body and for several hours within the gastrointestinal tract. Mosquitoes (*Culex*) and lice gave negative results. In one instance a bedbug took up the virus with the blood from infected monkeys and maintained it in a living state within the body for a period of seven days.

MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

December, 1912.

Treatment of Somatic Death.—W. Wayne Babcock maintains that the evidences of somatic death—cessation of respiration, circulation, and cerebration—should no longer be accepted by physicians, and especially surgeons, as indicating a hopeless condition of individuals coming under their observation. Crile has shown the possibility of resuscitating dogs after they have been somatically dead for seven and one half minutes, and the author has witnessed a case in a human being in which certain cord reflexes were regained about twenty-five minutes after complete cessation of heart action. Before every serious operation the author has prepared a sterilized six ounce glass funnel, connected by soft rubber tubing with a hollow needle. If the patient later shows alarming symptoms, the apparatus is filled with warm physiological saline solution and the needle introduced into one of the veins near the elbow. After the flow has started, two or three drops of a one to 1,000 solution of epinephrine are dropped into the funnel, unless the condition is unusually urgent, when a larger number of drops is used. As the heart action improves the tube is pinched, to prevent excessive stimulation, and if later the pulsations weaken the injection is renewed as required. Where there has been complete cardiac arrest, regular, violent blows with the ulnar side of the fist over the precordium, are tried, and if this fails, cardiac massage is practised, either with the hand in the abdominal cavity, or by a finger quickly introduced through a simple stab puncture through the fifth costal interspace, 1.5 inch to the left of the sternum. Other measures resorted to are oxy-

genation of the intravenously injected fluid and artificial respiration by rhythmic compression of the thorax or subtracheal insufflation of oxygen. The author reports cases illustrating the efficiency of these procedures, including one in which after complete circulatory arrest for about twenty-five minutes and of respiration for about thirty-five minutes resumption of these functions took place and the patient lived forty-three hours longer.

Primary Cancer and Sarcoma of the Lung.—Roland G. Curtin emphasizes the value of the following features of malignant lung disease in the diagnosis thereof: 1. Early emaciation. Loss of flesh may begin two or three or even six months before local manifestations appear, especially in carcinoma. 2. Dyspnea, which may occur early and is often more marked than would seem warranted on comparison with the apparent involvement in the chest. 3. The fact that little if any relief is obtained by tapping, probably, at least in some cases, because the fluid is contained in cysts or sacculations. 4. A characteristic type of hemoptysis, which the author has noticed three times in seven cases of primary lung disease, and several times in pulmonary metastases, but never in any other affection. It consists in the expectoration of a dark purple or red globule of blood encased in a transparent glazed coating or capsule and about the size of the end of the little finger. It is sometimes lobulated. The author believes it to be pathognomonic.

General Treatment of High Blood Pressure.—See the JOURNAL for July 20, 1912, page 150.

Psychic Effects of Accidents.—T. A. Williams points out that in the treatment of cases of traumatic neurosis the litigious element prevents the psychotherapist from directly replacing the causative morbid idea by another, for the patient is suspicious of every one who does not accede at once to his fixed idea that he is incapacitated. It is therefore necessary to secure the patient's active consent and create in his mind a desire for the disappearance of the hurtful idea emotion complex before enlightenment as to his condition can procure any relief.

PENNSYLVANIA MEDICAL JOURNAL.

December, 1912.

Phlyctenular Conjunctivitis.—H. F. Pyfer found a positive tuberculous skin reaction in each of twenty-seven cases of true phlyctenular conjunctivitis in hospital patients. In private patients a positive result was obtained in seventy-three per cent. of a series of twenty-two. Many of the hospital patients had other stigmata of tuberculosis. Other observers have reported the finding of similar results in this condition, but, all together, very little notice has been given to this phase of the question. Pyfer suggests the necessity for careful treatment of these cases along the general lines employed for the care of the tuberculous, including the proper use of tuberculin.

Proctoclysis in Nephritis.—H. Lowenburg uses large amounts of saline solution introduced continuously and very slowly into the rectum in the treatment and prophylaxis of acute nephritis. He reports excellent results and agrees with the theories of Fischer to the effect that acute nephritis

is due to the action of acids, in excess, upon the colloidal albuminous structures of the kidneys, causing their solution. Fischer further showed that the presence of neutral salts would prevent this solvent action of the acids, and with this view Lowenburg, as the result of his clinical experiences, is also in full accord. Contrary to the views most commonly held, he finds that the introduction of large amounts of sodium chloride does not tend to the production of edema and fluid retention, but quite the opposite effect is observed; that is, there is a diminution of edema, if present, and a marked diuresis is established.

Tuberculin in Cervical Adenitis.—A. R. Allen believes that the use of tuberculin has a decided curative effect in all cases of tuberculous cervical adenitis. He holds that as soon as tuberculin is used there is a decided increase in the weight, and improvement in the general health, of the patients. Where discharging sinuses are present they close promptly, and wounds remaining from broken down glands heal kindly and rapidly. He deprecates operative removal of tuberculous glands, as the tuberculin treatment is efficacious and much more beneficial.

SURGERY, GYNECOLOGY, AND OBSTETRICS.

December, 1912.

Controlling Post Partum Hemorrhage by Manual Compression of the Abdominal Aorta.—Edward P. Davis says that in dealing with desperate cases of post partum hemorrhage, direct compression of the abdominal aorta by intrauterine pressure, has proved promptly efficient and has given opportunity to apply stimulating methods of treatment and permanently arrest bleeding. The hand with the closed fist is carried within the uterus just above the pelvic brim at the bifurcation of the aorta, and the aorta compressed by forcing the knuckles backward toward the spinal column. In central placenta prævia surgical treatment of abdominal Cæsarean section is indicated in cases which have not been infected by vaginal packing or manipulation, and where mother and child are in fairly good condition.

Hypernephroma of the Kidney.—I. S. Stone, in reviewing the symptoms, remarks that although hypernephromata are nearly always malignant in character, it is exceptional that blood is seen in the urine. Pain is usually experienced in or near the kidney, though at times it may be referred. The tumors are rarely palpable, anemia usually marked, signs of mild infection with fever and leucocytosis are usually present, metastases are common, and the skin, in contrast with tuberculosis of the suprarenals, is rarely pigmented.

Myoma of Cervix Uteri.—M. Rabinovitz analyzes the literature on the subject and draws the following clinical deductions: 1. The etiology of cervical as well as corporeal myoma is, in all probability, a perverted ovarian secretion. 2. The period of life most propitious for the growth of myomata is between the ages of thirty and forty-five years. 3. The posterior lip is more frequently affected than the anterior. 4. Cervical myomata are more frequently the cause of sterility than corporeal myomata. 5. Abortion occurs less frequently in cervi-

cal myoma than in myoma of the body of the uterus. 6. Dystocia is much graver in cervical myoma. 7. Bladder and rectal disturbances and neuralgic pains from pressure upon the sacral plexus, manifest themselves at an earlier period in cases of cervical myoma than in uterine. 8. The diagnosis of cervical myoma offers greater difficulties than are presented by uterine myoma. 9. The treatment of cervical myoma is radical removal, choosing the vaginal route for the intravaginal variety and the abdominal approach for the supravaginal growths.

Sterility in the Female without Marked Gross Pathology.—Charles C. Norris reports thirteen conceptions out of thirty-five cases of which the chief anatomical defects were in the cervix or uterus and all the patients have been sterile for periods varying from two to twenty-eight years; he draws the following conclusions: 1. One in every seven or eight marriages is sterile. About fifty to seventy-five per cent. of these are due to sterility of the woman. 2. Sterility may be the result of a variety of causes, both local and general. 3. Excluding gonorrhea, the three most frequent local causes productive of sterility are hypoplasia of the uterus, constriction of the cervical canal, or a mild grade of cervicitis. 4. The routine practice of subjecting all cases of sterility to some form of dilatation operation, often without even ascertaining if the woman is the partner in fault, cannot be too severely condemned. 5. When hypoplasia of the uterus, a constriction of the cervical canal, or ante flexion is present, the stem pessary offers an excellent means of treatment. It produces permanent dilatation, proved by the fact that it cures more than eighty-six per cent. of cases of expulsive dysmenorrhea. The stem pessary tends to produce development in those cases of hypoplasia of the uterus and by the drainage secured often cures, and in all cases facilitates, the treatment of endocervicitis of nongonorrheal origin. It also straightens out flexions. In this form of treatment success follows thirty-seven per cent. of the cases of sterility. 6. No ill effects have followed this form of treatment in any of the cases operated in for either sterility or dysmenorrhea. It is essential that gonorrhea and the various forms of pelvic inflammatory disease be excluded.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held at Old Point Comfort, Virginia, December 17, 18, and 19, 1912.

The President, Dr. J. M. T. FINNEY, of Baltimore, in the Chair.

Intestinal Obstruction.—Dr. ALEXIUS McCLANNAN, of Baltimore, stated that the form of operation required in any given case must depend on the nature of the obstruction and on the presence or absence of complications. Thus we grouped the operations performed into three classes, namely, relief of the obstruction, excision of intestine, and enterostomy. In order to judge the efficiency of any of these operations it was necessary that the procedures be compared with regard to the stage of the disease at which the operation was performed. This was the only logical basis for study of the treatment of ob-

struction and avoided the confusion of many classes as to causation, differences in position of the obstruction, and variations in the completeness of the occlusion. Each of these factors altered the rapidity of development and the duration of the three stages of the disease, consequently a study of intestinal obstruction from the point of view of the symptomatology and treatment of these stages balanced the relation of the various factors and made the comparison of operative statistics possible.

Of thirty-four patients treated in the first stage, all recovered. Of these twelve were relieved of their symptoms by enemas and purgatives. The other twenty-two were operated upon; in fifteen the obstruction was relieved; resection was performed in three cases; enterostomy with short circuiting and enterostomy with relief of obstruction once each. Simple enterostomy was done twice. Relief of the obstruction, therefore, was the best operative procedure in cases treated during the first stage. When provision had been made for a delayed enterostomy, this was the best procedure in postoperative obstruction, probably because opening the previously brought up loop gave no operative shock. Sixty-five patients were operated upon in the second stage, fifty-five recovered, eleven of these died as a result of a second operation or some complication developing later than one week after the original operation. The operations performed were as follows: Relief of obstruction, forty-four, six fatal; short circuiting, two; excision, fourteen; enterostomy, four; enterostomy with other operations, fifteen. One patient was relieved by an enema. Gangrene was present in ten cases; two were treated by anastomosis and excision; eight patients recovered; six were resected. Relief of the obstruction seemed the best operation in the second stage, provided gangrene had not developed. In the presence of gangrene resection was the best operation, provided the constitutional symptoms were not pronounced. In the latter event, enterostomy should be added to the resection, or if the condition of the patient was grave, the loops might be brought out of the abdomen packed off with gauze, with an enterostomy above the obstruction.

Eighty-two patients were operated upon in the third stage; fifty-two died. Relief of the obstruction was done in twenty-two per cent. of the cured, thirty-four per cent. of the fatal cases, with enterostomy and relief in twenty-two per cent. of the cured, eight and a half per cent. of the fatal; simple enterostomy in forty-five per cent. of the cured, thirty-two per cent. of the fatal cases; enterostomy with other operations in the remaining cases, three cured, and nine fatal. Resection was done in one fatal case, and extrusion in two others. One patient was relieved by an enema and five died without operation. Gangrene was present in fifteen cases, two cured and thirteen fatal. In both the cured cases enterostomy and excision were done.

In the third stage, enterostomy should be done, either alone or in connection with the other procedures. In the nongangrenous cases enterostomy was done in seventy-seven per cent. of the cured and in but forty-one per cent. of the fatal cases.

Dr. JOSEPH C. BLOODGOOD, of Baltimore, stated that the essayist was the first to publish a large number of cases showing the importance of the effect of washing out the stomach and of giving enemas to aid in the early diagnosis of intestinal obstruction, a thing always neglected outside of the hospital, and often neglected in the hospital, namely, the importance of the stomach tube and enema in the differential diagnosis. In going over his cases years ago he was surprised at the difference between the mortality in cases of intestinal obstruction taking place in the hospital and those outside of the hospital. Those in the hospital had just been subjected to operation, and, therefore, were not considered good operative risks, yet the mortality from postoperative obstruction was much less than it was outside, due to the early recognition of the obstruction, and in the majority of cases early diagnosis had been made by the use of the stomach tube and enema.

Dr. HENRY T. BYFORD, of Chicago, stated that one point in the treatment which it was necessary to consider and one which involved early diagnosis, was whether the obstructed gut was going to result in gangrene or some permanent injury, or whether the patient could be carried along for a while without any resulting injury. In post-

operative cases, in which there was a kink in the intestine or adhesions sufficient to cause paralysis, if we were in doubt as to whether there was really an obstruction or adhesions sufficient to cause paralysis, if we could introduce two or three quarts of fluid into the system, we might be able to carry the patient over a week or more, so that there would not be any gangrene, as in a case of volvulus, intussusception, or hernia, and this explained why cases got along better in a hospital than outside of such an institution.

Dr. JOHN YOUNG BROWN, of St. Louis, pointed out that the importance of draining the distended loop of bowel above the obstruction could not be too strongly accentuated. A number of years ago, in a paper he read before the Mississippi Valley Medical Association, he reported a series of cases in which he resected the gangrenous gut and described a method of draining the loop of intestine above the obstruction, namely, to cut across the bowel, introduce a tube into the bowel, and while an assistant was handling the bowel above, the resection was made without losing any time. The use of the stomach tube and rectal tube, both before and after operation, was of exceeding importance.

Dr. ERNST JONAS, of St. Louis, believed that early operation in cases of intestinal obstruction by a poor operator was preferable to a late operation by the most experienced surgeon. The doctor should be warned about giving cathartics by mouth if there was any doubt as to intestinal obstruction. Cathartics in these cases aggravated the condition. If enema and lavage did not relieve the patient, preparations for operation should be made.

Dr. I. S. STONE, of Washington, D. C., thought that purgatives not only did harm, but they were rarely indicated. With the use of eserine and enemas, properly given, he had never seen a purgative necessary. Since he had been using that combination, he had never found a secondary operation necessary where the conditions were not most formidable and where that simple method of treatment was properly tried.

Dr. SAMUEL J. MIXTER, of Boston, said that in looking back on the fatal cases of intestinal obstruction, it would be found death occurred in those cases where the intestine had not been emptied, or where an anastomosis had been done immediately and the septic contents of the occluded intestine had been poured into the lower intestine. Abbe pointed out that the intestine below was starved and ready to take up the material poured down from above, and in that way a rapid and fatal sepsis ensued.

Dr. CHARLES H. MAYO, of Rochester, Minnesota, said that in the last year, in cases of intestinal obstruction, they had in four cases through the appendicostomy incision been able by drainage to overcome the immediate obstruction.

Dr. JOSEPH RANSOHOFF, of Cincinnati, called attention to the use of the x ray in locating the obstruction in acute cases. Outside of hospitals this was out of the question, but when a patient was brought into the hospital it took but a short time to get an x ray picture, and in three recent cases the obstruction was located by this means.

Dr. ROBERT T. MORRIS, of New York, stated that for a year or more he had been using injections by rectum of bismuth solution, also using it by the stomach as far as possible, and then employing the fluoroscope, and in this way determining definitely the seat of the obstruction.

Dr. H. A. ROYSTER, of Raleigh, N. C., said if there was retention of scybalous masses and the bowel was gripped on something and could not release itself, if the gut was much distended, and the patient was vomiting, with very little or no pain, we could give a few doses of eserine, say one fourth of a grain of the salicylate, every two or three hours, until two or three doses were given, to be followed by an alum enema. If the patient was in great pain, we could give one hundredth of a grain of hyoscine, to be followed two hours later by an enema. With this treatment he had found some patients did not need operation at that time, and operation could be safely done later, while other patients did not need operation.

Dr. J. M. T. FINNEY, of Baltimore, said he had used the appendix after the method mentioned by Doctor Mayo in eight or ten cases of intestinal obstruction, and in his experience it did all that Dr. Mayo said it did, and it was a very valuable aid in those cases where the obstruction was low down. The indiscriminate use of eserine was

followed by disastrous results. His attention had been called to the fact by Doctor Abel of the pharmacological department of the Johns Hopkins Hospital, that eserine under ordinary circumstances had a marked depressing effect. In one case it apparently had a very alarming effect. In one or two others it was followed by marked symptoms of depression, but its withdrawal was followed by decided improvement.

Dr. RUFUS B. HALL, of Cincinnati, emphasized the point made by Doctor Brown in reference to draining the intestine above the seat of obstruction in those cases where it was thought best at the time of the operation to resect the gut. He had used the method advocated by Doctor Brown in a number of cases with satisfactory results. As to the use of eserine, he had seen a number of cases in which there was depression following its administration, and he usually gave it in no larger doses than one fortieth of a grain.

Dr. J. WESLEY BOVEE, of Washington, D. C., had been using eserine as a routine in every case after operation ever since Doctor Craig, of Boston, brought it to the attention of the profession. It never failed to produce a bowel movement in a case in which there was no intestinal obstruction.

Dr. W. W. CRAWFORD, of Hattiesburg, Miss., had personal knowledge of a patient who was given one fiftieth of a grain of eserine by mistake, and who was greatly prostrated by it, so that for two or three hours death seemed imminent. However, the patient did not die. Another patient, a clergyman, to whom he administered one fortieth of a grain of eserine on the second or third day after the operation, told him he felt as though a stick of dynamite had exploded within him.

Dr. ROBERT MILNE, of London, England, said it was very fashionable in the London hospitals to give eserine, but now it was only the extreme cases of distention that responded to the use of eserine. They did not give more than one hundredth of a grain at a dose, and they did not give more than three such doses. He could not say that in any of the cases they had noticed any particular collapse from the use of the drug.

Pancreatic Cysts.—Dr. LOMAX GWATHMEY, of Norfolk, Virginia, reported a case of cyst of the pancreas, and said the fluid content from the large cyst showed considerable detritus, few degenerated epithelial cells and leucocytes, but no cholesterol crystals. The small cyst showed a few degenerated epithelial cells. Attempts to cultivate the organism from the cyst contents were futile. The cyst presented one or two interesting features. The fluid in the large cyst was entirely different from that in the smaller cysts, the difference being due to a hemorrhage or hemorrhages that took place in the large cyst. The smaller cysts were lined by epithelium, while in the large cysts not a vestige of epithelium could be found. The large cyst was evidently lined by epithelium, but this epithelium must have suffered autodigestion. The cyst was at one time uniformly colloid. A hemorrhage or hemorrhages took place in the large cyst which caused the difference in the cyst contents, and which produced some trauma to the epithelium of the cyst wall, thereby allowing the ferments in the cyst contents to digest the epithelial lining. So lax was the abdominal wall after the removal of the tumor that the appendix was removed without difficulty through the same incision. It contained an extremely large appendicular stone in the tip and was actively inflamed. Old and fresh adhesions in the pelvis were broken up, adherent coils of small intestine removed from the cul-de-sac, and sigmoid properly placed in the pelvis. The kidneys, liver, gallbladder and ducts, the pancreatic head, and other abdominal organs were found normal. The wound was closed without drainage. The convalescence was easy and uneventful, and the patient left the hospital in nineteen days to go to her home in Chicago. A recent letter, six months since her operation, reported her to be in excellent health, much better than she had ever before experienced.

Dr. RUFUS B. HALL, of Cincinnati, said that several years ago he reported to the association an operation for pancreatic cyst. In that case the cyst evidently arose from trauma. The man was lifting and injured himself. He came to operation five or six months after injury with an enormous tumor in his abdomen, which held more than two and a half gallons of fluid. He simply drained the

cyst and stitched it to the abdominal wall. The man died from inanition the seventeenth day after the operation.

Increase of Newer Abdominal Surgery Due to Increase in Toxic Disturbances.—Dr. ROBERT T. MORRIS, of New York, pointed out that cobweb adhesions in the attic of the abdomen belonged to the toxic group of manifestations, and said we were learning a great deal concerning how these toxic impressions led to the formation of adhesions in cases without an acute inflammatory onset. In some instances bacteria penetrated the wall of the bowel. The endothelium was shed as a result of their presence and the lymph which exuded became disorganized and formed permanent adhesions that were common in the region of the cecum, largely in the region of the sigmoid, and largely in the region of the pylorus and the bile tract. Why were we having more abdominal surgery relating to Lane's kink, to Jackson's membrane, to cobwebs in the attic of the abdomen, than we ever had before? For the answer, we should turn to the statistics which were being collected by an insurance company of New York. This company found a rapid increase in insanity, and a rapid increase in the number of cases of arteriosclerosis, also in the number of cases which belonged to the stage of decadence. When there was arrested development as a result of the decadent change that was now taking place in all the civilized nations, in our present cultural period, physical defects or stigmata, as classified by psychiatrists, were increasingly in evidence.

What were we going to do? Surgery had a place in a number of this group of cases and could afford much help, but the other part of the question related to a better development of individuals in the race. It was a question which was not under the control of the surgeon, but belonged to the physiologist and to the eugenicist, and surgery was very important in that it would require a higher degree of skill on the part of the surgeon decade after decade, and it would require him to be more alert and better able to analyze cases than he had been able to do before. There would be more Jackson membranes, more Lane's kinks, and more adhesions than before, due to the increasing toxic conditions which belonged to the decadent stage of our cultural period.

Fractures into and about Joints.—Dr. CHARLES E. CALDWELL, of Cincinnati, said the subject of fractures was too perfunctorily taught. A clearer understanding of their nature and complications would bring about better results and obviate many lawsuits. Fractures into and about joints required more discriminating diagnosis and treatment than the average fracture of the shafts of long bones. Crepitus was valuable, and its absence significant. Perfect apposition of fragments was of more consequence in proximity to joints. Fractures of the anatomical neck were rare. In fracture dislocations, there was necessity for the removal of the head where reduction could not be accomplished.

Dr. RANDOLPH WINSLOW, of Baltimore, had had a number of cases of fracture of the surgical neck of the humerus, and had found it impossible in some cases to effect reduction until the arm was drawn into a position of extension and the bones held together by means of screws, but he had had some good results by that method.

Dr. A. A. LAW, of Minneapolis, stated that in the University of Minnesota they had a different procedure from that mentioned, and their results had been different from those related by Doctor Winslow. They resorted to the treatment suggested by Maxwell and Ruth in old people rather than let them be up and about, with the prospect of a deformed joint and a lack of function of the joint. One woman, eighty-seven years of age, and another of ninety-two, had functioning joints and union by following the Maxwell-Ruth method. This method in old people was attended with uniformly good results.

Dr. ROBERT T. MORRIS, of New York, said that in cases in which we did not wish to do an open operation we could often, in selected cases, do a simple operation: First, put the limb behind the fluoroscope; second, run a narrow bladed knife down near the fracture; third, put in a cannula; fourth, run a drill through the cannula, and transfix both fragments; fifth, run in a silver pin and leave it there, taking everything else out. One could pin a whole lot of fractures behind the fluoroscope with the patients under the influence of cocaine. This method did away with the disadvantage of keeping these patients in bed.

In many cases of fractures in joints one could put in a pin and do a simple operation.

Experimental Anatomical and Physiological Observations Bearing upon the Total Extirpation of the Colon.—Dr. AUGUST SCHACHNER, of Louisville, said that when we considered the arrangement by which twenty or more feet of small intestine were being supported through a peritoneal attachment measuring five inches, the weakness of the abdominal wall in the inguinal region and the hernias that resulted from the gravitation of abdominal contents against this lowest and weakest point, if we compared the darkened lungs of the human subject with the clean pink lungs of the quadruped living under the same condition as a proof of how unequal the cilia were in their efforts to lift the dirt and bacteria laden mucus against gravity, and when we watched the pathetic efforts of the tuberculous subject to raise against gravity his expectoration, we got the full swing of the disadvantages of the upright position.

Mr. Arbuthnot Lane, through his work that extended over more than ten years, especially his recent writings, together with Elias Metchnikoff, deserved the credit for calling the attention of the world to the injurious effects of intestinal stasis. While the end to end anastomosis was functionally the most natural, the end to side had the advantage of more security and practically the same advantages that applied to end to end. His experimental work justified him in believing that when an ileoproctostomy, or ileosigmoidostomy was made by the lateral method, the intestinal contents did not pass through this opening as a rule, but continued the natural course through the colon provided no obstruction existed. In other words, it was a repetition of what occurred in the stomach after a gastroenterostomy with a patulous pylorus. The work of Metchnikoff plainly suggested the chemical side of the question, that is, the chemistry of the large intestine when its functions were for any length of time interfered with. The influence of an abnormally movable kidney as a factor in the development of splanchnoptosis, had not received the attention it deserved. Few of us perhaps realized that the retroperitoneal position of the kidney when making excursions, enabled it to dissect loose through attrition the peritoneal attachment that served to anchor the viscera to the vertical column. The problem was comprehensive enough to accept all the assistance it could through gymnastics, bandages, regulation of diet and habits, and still furnish an abundant percentage of human wreckage, as Mr. Lane expressed it, for the surgeon to attempt to reclaim.

Dr. JOHN YOUNG BROWN, of St. Louis, pointed out the advantages of complete physiological rest of the entire large bowel in the treatment of certain diseases of this organ which had heretofore been treated by some of the surgical methods, and described a technic by which this rest could be accomplished, and when its purpose had been fulfilled the bowel could be put back into commission in a manner both safe and satisfactory. Through a right rectus incision sufficiently long for general exploratory purposes, the abdomen was opened. The cecum was at once sought, and the large bowel was carefully examined from cecum to sigmoid. All pericolic adhesions were then severed, the appendix removed, and the stump buried. The ileum was next severed between two clamps, close to the ileocecal valve. The distal ileum was tied off and buried as was the appendix. At a suitable part of the cecum, a purse string suture of linen was placed and the cecum was next incised. Through this incision, a large rubber catheter was inserted after which the purse string was tightly tied. A second purse string of No. 1 chromic catgut was next placed. Under the loops of this purse string, three long catgut fixation sutures were placed. A stab wound was next made at McBurney's point through which a forceps was inserted. The catheter and fixation sutures were grasped in the bite of this forceps and pulled through the stab wound. The peritoneal surfaces of the cecum surrounding the catheter were next scarified and the catheter was pulled through the stab wound, carrying with it the three fixation sutures. The catheter was now slipped through the button and the fixation sutures were threaded through the eyes in the button and tightly tied, thus closely approximating the serous surfaces of the cecum to the parietal peritoneum. A staff rubber drainage tube was next inserted into the proximal ileum and fixed with a double

purse string suture. The ileum was now brought out at the lower angle of the rectus incision. The parietal peritoneum was made to hug it snugly by a few catgut sutures, and the abdominal wound was closed in the usual way. The indication for restoring the continuity of the large bowel were improvement of the patient's general condition and the return to normal of the discharge from the excluded large bowel, as shown after repeated chemical, microscopical, or cultured growth examination of irrigation fluids passed through it. This restoration should not be made too early, particularly in the ulcerative lesions of the colon. When the surgeon deemed that the large bowel had sufficiently healed and desired to put this organ back into commission, this restoration was readily done by simply cutting out the anus at the lower angle of the rectus incision, closing its end with a purse string suture, making a lateral anastomosis of ileum to ascending colon or by switching the ileum into the sigmoid. He had never found any difficulty in restoring intestinal continuity. On the contrary, the operation was simple and easy. His experience had been gained from ten cases so operated in. Two were of chronic intestinal stasis, with obstructions due to pericolic bands and flexures. Both had greatly improved and were now comparatively cured. Three operations were done for the relief of amebic dysentery. All the patients were cured. One was a case of ulcerative colitis with extensive involvement of the sigmoid and rectum; patient was now in good health. One was a case of extensive obstructive tuberculous colitis; this patient received great relief from the operation and lived in comfort for two months. Three were for late and inoperable malignant disease of the rectum. One lived six months, one five months, and the third patient was still living, nine months after operation, was comfortable and in reasonably good health, so there was no mortality in the series.

(To be continued.)

Letters to the Editor.

ANTINARCOTIC LEGISLATION.

NEW YORK, February 10, 1913.

To the Editor:

The editorial article in the last issue of your valuable JOURNAL on Antinarcotic Legislation touches a very important part in the practice of every physician, especially, as pointed out by you, that of rhinolaryngology. The proposal to forbid physicians the use of any stronger solution than four per cent. is so ridiculous that it is almost beyond discussion. In laryngological work we use twenty per cent. solutions every day in our office practice. In bronchoscopy, which at present is also being done in private practice, that solution is pushed to the point of toleration; and in certain operations on the nose the writer as well as other colleagues use pure cocaine. Shall we be obliged to get a permit, whenever we operate for a deviated septum, or must the patient suffer pain because a few rascals in the profession have turned a valuable anesthetic into profane business? Because there are some abortionists with the diploma of M.D. in this city, are all obstetricians to be put under a special code?

Furthermore, it is scientifically wrong to keep cocaine in solution for any length of time, as it decomposes so quickly. Only those who use a great deal may do that. As a rule, however, every physician ought to prepare his own solution at the time he needs it. For that reason he must be able to get the pure cocaine, and not a four per cent. solution.

Finally, the writer would ask, why only regulate the sale of the opium and coca derivatives? Aren't there many other drugs that could be and are being sold fraudulently and to the detriment of the patient? One drug especially, that is being used in connection with cocaine so frequently, comes to our mind, viz., epinephrine. There are great chances for quacks to perform miraculous cures with that drug, and yet epinephrine is free, though it has brought about the death, as pointed out by the writer, in a number of cases. Would rhinologists care to be restricted in its necessary and legitimate use?

To prevent the injudicious sale of morphine, cocaine, etc., to the public is an entirely different matter, and no-

body objects to having that regulated in a rational manner. But to restrict physicians in applying these drugs to patients is, to say it mildly, erroneous.

It seems to us that a tendency prevails at present—not only in the Legislature—to restrict the already restricted physician. A regular physician is regulated by his education, his diploma, his associations and medical societies, while the quack is allowed to advertise his impossible cures, to sell his swindling medicines, and to carry on a large business without interference from anybody.

If a physician has been found to have committed any criminal action we should have the right to *disbar* him, i. e., to take away his diploma. Otherwise he must have full freedom in the practice of his profession. We want to enlarge his sphere of usefulness, and not hamper it.

WOLFF FREUDENTHAL, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Student's Manual of Surgical Diagnosis. By GEORGE EMERSON BREWER, M. D. New York and London: D. Appleton & Co., 1912. Pp. 40.

Success in treatment depends largely upon accuracy in diagnosis, upon a system of reasoning which includes all possible pathological processes. In this comparatively small but commendable publication, the author presents to the student a valuable system of surgical diagnosis, a system "by exclusion," which comprises two series of charts; the first, designated "preliminary charts," represent the simplest class of the four primary groups of surgical lesions, viz., injury, deformity, inflammation, and new growth, and the second, the more complicated "regional charts," together with a number of case histories to illustrate their use. At the end of the book are blank pages to encourage the student to make his own original charts. Doctor Brewer's wide experience both in clinical work and teaching, has made him unusually well fitted to prepare a manual of this kind. The latter bears the stamp of individual trial of the methods advocated. The "exclusion" method unquestionably possesses the most advantages for the correct diagnosis both of simple and obscure clinical problems. The present manual applies the principle very consistently to the subject of clinical surgery and should prove of great value to both students and teachers of surgical diagnosis.

Elementary Biology. Animal and Human. By JAMES EDWARD PEABODY, A. M., and ARTHUR ELLSWORTH HUNT, Ph. B. New York: Macmillan Company, 1912. Pp. xiv+212. (Price, \$1.)

The authors of this work state that the primary emphasis in the whole course should be placed on the many relations of biology to human welfare. With this as the point in view, they have succeeded in producing a very valuable book. Starting with the insects there follow chapters on birds, frogs, fishes, crayfishes, and the paramecium. Wherever possible the relation to the human being is emphasized. The second portion of the book deals with human biology and the presentation is very good; microorganisms are briefly but satisfactorily discussed. A chapter on foods and one on stimulants and narcotics follow. The dangers of alcohol and tobacco, particularly the latter, may be somewhat overestimated, but it is the safe side on which to err. The digestive, circulatory, and respiratory systems are described sufficiently, and a chapter is given to a brief review of the skin, skeleton, muscles, nerves, eye, and ear. The material is ably and conveniently presented, and the cross references by means of paragraph numbers add much to the value of the book. There is one fault, however, and that seems to be a grave one; everything is omitted that would indicate the existence of the genitourinary tract. To teach biology with no reference to reproduction is futile; it is like trying to build an arch without a keystone. In every other respect the volume can be highly recommended.

Maladies du rachis et de la moelle. Par MAURICE AUVRAY et ALBERT MOUCHET. Paris: J. B. Baillière et fils, 1913. Pp. 528.

The fourteenth volume of this notable treatise on surgery deals with diseases of the spine and spinal cord. The distinguished surgeons whose names appear as authors are sufficient guarantee of the excellence of the text. The first section of the work is devoted to surgical anatomy, physiology, pathology, operative technic, injuries, and tumors. The second section describes congenital diseases, acquired deformities, and inflammatory affections. Both sections contain the most recent additions to our knowledge of the important subjects under consideration and give the reader an accurate and practical description of a field of surgery which has in the last few years made great advances both in diagnosis and operative treatment. The chapters devoted to the technic of laminectomy for fractures and removal of tumors, resection of the posterior roots for the relief of intractable neuralgia, spastic paralyses, and gastric crises are particularly worthy of attention. The various steps in the operation of laminectomy are illustrated by excellent drawings and diagrams. The subject of spina bifida receives a very systematic and complete description and the various forms of the abnormality are fully discussed from a pathological and surgical point of view. The volume maintains the high standard set by the preceding ones and will be welcomed by the general surgeon as well as the specialist in neurological work.

The Clinical Pathology of Syphilis and Parasyphilis and Its Value for Diagnosis and Controlling Treatment. By HUGH WANSEY BAYLY, M. A., M. R. C. S., L. R. C. P. New York: William Wood & Co., 1912. Pp. xiii-194. (Price, \$2.25.)

In this handy little volume much widely scattered material is collected in accessible form. The life history of spirochæta, its culture and microscopic diagnosis, and syphilis in animals occupy the first three chapters. The succeeding eight sections are devoted to the Wassermann reaction and its technic; then follows a chapter on salvarsan and its administration. Chapter fourteen deals with the serum reaction in relation to the mercurial and arsenical treatment; chapter fifteen considers anaphylaxis; and the final section deals with the serum reaction and life insurance. The book is certainly to be recommended not only as a comprehensive though condensed textbook for the beginner, but also as a handy reference volume for those who are unable to look up sources in the many and important practical questions arising in the newer syphilography.

Aids to Tropical Hygiene. By Major R. J. BLACKHAM, D. P. H., R. A. M. C. New York: William Wood & Co., 1912. Pp. vii-192. (Price, \$1.25.)

This small volume is very valuable because, although it is small, it contains a large amount of information clearly and succinctly put. Although it is supposed to deal with tropical hygiene, it is just as applicable to all climates, excepting that unusual stress is laid upon insects and their relation to disease. The chapter on the prevention of malaria gives a good review of methods that have been found effective. There are no illustrations, but the value of the book is as great, possibly greater, without them. There are two important tables, however, one giving the tropical diseases necessitating preventive measures; the other showing the distinctive characters of the more important species of flies found in houses. The book is a useful one and can be recommended when considered as an aid to the study of tropical hygiene, but not as an authoritative textbook.

Le Radium, son emploi dans le traitement du cancer. Des angiomes, chéloïdes, tuberculoses locales et d'autres affections. Par LOUIS WICKHAM et PAUL DEGRAIS. Avec 53 figures dans le texte. Paris: J. B. Baillière et fils, 1913. Pp. 95.

General considerations, in this little work of MM. Wickham and Degrais, of radium and radioactivity, and of the separate emanations and alpha, beta, and gamma rays serve to introduce a subject on which the ideas of the profession in general are still uncertain; following this is a brief description of the apparatus employed, the methods of filtration, and the tissue reactions that follow the employment of the remedy. Most of the small volume, however, is oc-

cupied by a consideration of the practical results attained in epithelioma and cancer of various kinds, in sarcoma, in mycosis fungoides, in angiomas and nævi, in keloid, lupus, and various other tumors of the skin and the internal organs. The "before and after" illustrations, of which there are a considerable number, are in some instances fairly convincing; in others, however, their results seem inconclusive, and are certainly not better than those obtainable by simpler means. For the main objection to the radium treatment, and the reason why its status as a therapeutic measure has not been determined long ago, is its expense; a remedy that is so costly as to be beyond the reach of the profession must give very unmistakable evidences of indispensability before it can be generally adopted.

Internationale Uebersicht über Gewerbekrankheiten. Unter Mitwirkung von Leo Kann bearbeitet von Dr. ERNST BREZINA. III. Heft. Wiener Arbeiten aus dem Gebiete der sozialen Medizin. Herausgegeben von Dr. LUDWIG TELEKY. Wien: Alfred Hölder, 1912. Pp. 122.

This book, though composed of but 122 pages, is an extremely complete encyclopedia of occupation diseases. Statistics as to deaths due to various diseases in the different countries of Europe are given; methods for preventing industrial accidents are expounded in detail; e. g., the perfuming of odorless and deadly gases (page 61); details of ventilating apparatus in glassblowing factories to prevent extraordinarily high temperatures, etc. This should be a valuable book, not only for physicians, but also for manufacturers who desire to improve conditions in their various businesses. It is to be regretted that there is not an English translation.

Physiologische und therapeutische Wirkungen des Radiums und Thoriums. Von Dr. ALFRED FÜRSTENBERG. Halle a S.: Carl Marhold, 1912. Pp. 68.

In this small monograph the component elements of the rays from radium and thorium, the occurrence in nature of radioactive substances, the measurement of radioactivity, the biological action and the therapeutic indications for radium treatment, etc., are detailed; thereon follows a résumé of the specific affections in which the method has been used. The more recently proposed radium baths, inhalations, and drinking waters are briefly considered; finally, the thorium and allied substances receive attention. The whole forms a concise account of our present knowledge on this interesting even if hardly practical important therapeutic group.

Die Krankheiten des Verdauungskanal. Von Dr. PAUL COHNHEIM. Berlin: S. Karger, 1913. Pp. viii-275.

That three editions of this work have appeared is sufficient indication of its value, particularly when the author is one so well known in his special field. As much has appeared in the past few years, this edition contains several new portions dealing with diagnosis by the x ray, endoscopy, the significance of occult blood in the feces, trypsin estimation, etc. The first section is devoted to general matters, physical examination, and the examination of the gastric contents, chemically and microscopically. The greater part of the book takes up the diseases of the special divisions, the esophagus, stomach, and intestines. The author lays much stress upon the necessity of obtaining an accurate case history, admitting that it is difficult and time consuming, but that it is the only basis for diagnosis and treatment. At the end of the book is given a brief summary of the symptoms of the more important digestive disturbances. This work is a good one.

Die Skrofulose. Von Prof. Dr. G. CORNET. Wien und Leipzig: Alfred Hölder, 1912. Pp. x-520.

This addition to Nothnagel's System of Medicine maintains the standard set by the other volumes. As some seven years have passed since the publication of the first edition, much has appeared during that time. Many of the older ideas have been substantiated and many questions have been cleared up. Some investigators hold that scrofula is nothing else than a chronic or distinctly localized manifestation of tuberculosis; others that it is from the beginning a distinct entity that frequently is complicated by tuberculosis. The author also states that as a

result of the differentiation of the tubercle bacilli into the human and bovine types, many conditions formerly inexplicable have been made plain. Concerning infection of the human being by the bovine bacillus it is stated as being of little importance in general. On the other hand, it plays probably a distinctly important part in tuberculosis of children in regard to infection of the mesenteric and cervical nodes. In looking through the book one gets the impression that there has been little overlooked in this important field; it is indeed an excellent publication.

Meetings of Local Medical Societies.

MONDAY, February 17th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Medical Society of the County of Erie, N. Y.; Elmira Clinical Society; Hartford, Conn., Medical Society.

TUESDAY, February 18th.—New York Academy of Medicine (Section in Medicine); Psychiatric Society of Ward's Island; Tri-Professional Medical Society of New York; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Clinical Society of Elizabeth, N. J., General Hospital.

WEDNESDAY, February 19th.—New York Academy of Medicine (Section in Genitourinary Diseases); Woman's Medical Association of New York (Academy of Medicine); Northwestern Medical and Surgical Society of New York; Medicolegal Society, New York; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association.

THURSDAY, February 20th.—New York Academy of Medicine (stated meeting); German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Aesculapian Club of Buffalo, N. Y.

FRIDAY, February 21st.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society; Alumni Association of Roosevelt Hospital; Saratoga Springs Medical Society.

SATURDAY, February 22d.—West End Medical Society; New York Medical and Surgical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 8, 1913:

Darnall, M. H., Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Hunt, Va., on February 1st, and proceeded to his home at Washington, D. C.
Foster, G. B., Lieutenant, Medical Corps. Left Fort Leavenworth, Kansas, on January 31st, en route to Manila, P. I.
Hall, J. D., Major, Medical Corps. Left Fort Strong, Mass., on February 13th on four months' sick leave, with permission to go beyond the sea.
Heflebower, R. C., Lieutenant, Medical Corps. Sailed from San Francisco, Cal., on February 5th, for the Philippines.
Munson, E. L., Major, Medical Corps. Left Presidio of San Francisco, Cal., on January 26th, for Washington, D. C., for examination for promotion.
Reno, W. W., Major, Medical Corps. Left his station at Fort D. A. Russell, on February 1st, on two months' leave of absence.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending February 8, 1913:

Brownell, C. D., Surgeon. Detached from duty at the

Navy Yard, Portsmouth, N. H., and ordered to the Naval Hospital, Boston, Mass., for treatment.
Richards, T. W., Surgeon. Ordered to additional duty at the Naval Hospitals in Boston, Mass., and Newport, R. I.
Wright, B. L., Surgeon. When discharged from treatment at the Naval Hospital, Norfolk, Va., ordered to duty at the Navy Yard and Naval Hospital, Portsmouth, N. H.

Births, Marriages, and Deaths.

Born.

Fleitas.—In Philadelphia, on Friday, January 31st, to Dr. and Mrs. Joseph, Fleitas, a son.

Married.

Castlen—Galbraith.—In Seattle, Wash., on Monday, January 20th, Lieutenant Charles R. Castlen, Medical Corps, United States Army, and Miss Lura Mareta Galbraith.
Coffin—Corwin.—In Liberty, Mo., on Wednesday, January 29th, Dr. George Oliver Coffin and Miss Ida Corwin.
Cook—Hunt.—In Cleveland, Ohio, on Wednesday, January 29th, Dr. Joseph E. Cook and Miss Nettie Hunt.
Cronin—Doyle.—In Watervliet, N. Y., on Saturday, February 1st, Dr. Marcus Denis Cronin, of Albany, and Miss Helen Margaret Doyle.
Gammons—McBride.—In Rutland, Mass., on Wednesday, January 29th, Dr. Herbert Francis Gammons and Miss Emma T. McBride.
Groetsch—Buhler.—In New Orleans, La., on Saturday, February 1st, Dr. Charles William Groetsch and Miss Buhler.
Johnson—Roe.—In Brooklyn, on Friday, February 7th, Dr. John George Johnson and Miss Emma Bellows Roe.
Nothnagle—Dyson.—In Philadelphia, on Saturday, January 25th, Dr. Frank R. Nothnagle, of Chester, and Miss Florence Dyson.
Post—Dick.—In Washington, D. C., on Thursday, February 6th, Assistant Surgeon Dana C. Post, United States Navy, and Miss Helen McEwen Dick.
Pulley—Hardman.—In New York, on Thursday, January 30th, Dr. William Joseph Pulley and Miss Edythe Hardman.
Samorini—Montesi.—In Brooklyn, N. Y., on Wednesday, January 29th, Dr. Arnaldo A. Samorini, of Schenectady, and Miss Ilma Montesi.
Tuttle—Jones.—In Ridgeway, Va., on Thursday, January 30th, Dr. Andrew Frye Tuttle, of Spray, N. C., and Miss Daisy King Jones.

Died.

Birch.—In Newburg, N. Y., on Friday, January 31st, Dr. James Gulick Birch, aged seventy-six years.
Burwald.—In Cleveland, Ohio, on Saturday, February 1st, Dr. Ernest S. Burwald, aged seventy-four years.
Carrington.—In Richmond, Va., on Tuesday, February 4th, Dr. George W. Carrington, aged eighty-three years.
Clark.—In Fitchburg, Mass., on Wednesday, January 29th, Dr. Joseph Leonidas Clark, aged sixty-one years.
Corson.—In Bridgeton, N. J., on Saturday, February 1st, Dr. Francis F. Corson, aged sixty-five years.
Epstein.—In Chicago, on Sunday, January 26th, Dr. Enlraim M. Epstein, aged ninety-nine years.
Fletcher.—In Waterville, Me., on Friday, January 31st, Dr. Arthur Stanford Fletcher, aged thirty-one years.
Hartt.—In Seattle, Wash., on Wednesday, February 5th, Dr. Samuel Whitfield Hartt.
Ireland.—In Roslyn, N. Y., on Wednesday, February 5th, Dr. Treadwell Lewis Ireland, aged eighty-six years.
Jenckes.—In Woonsocket, R. I., on Monday, January 27th, Dr. George Washington Jenckes, aged eighty-three years.
Lloyd.—In Danville, Pa., on Saturday, February 1st, Dr. Thomas Lloyd, aged thirty-four years.
Luebbers.—In St. Louis, Mo., on Monday, January 27th, Dr. Alfred Luebbers, aged forty-seven years.
Mackaye.—In Newport, R. I., on Sunday, February 2d, Dr. Henry Goodwin Mackaye, aged fifty-six years.
Moore.—In East Providence Centre, R. I., on Thursday, January 30th, Dr. Elmer E. Moore, aged fifty-two years.
Seymour.—In Flushing, N. Y., on Wednesday, February 5th, Dr. Mason S. Seymour, aged eighty-five years.
Smith.—In Neenah, Wis., on Friday, January 31st, Dr. Eli J. Smith.

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THE DIAGNOSTIC SIGNIFICANCE OF PAIN IN TABES.

BY ALLAN McLANE HAMILTON, M. D., LL. D.,
F. R. S. (Edin.),

New York.

Tabetics in the early stage of their disease, as a rule, complain of the familiar pains situated mostly in the lower extremities, and in the apparent absence of qualifying symptoms these are often mistaken for other forms of disease; in fact, the ordinary patient with locomotor ataxia frequently insists in the beginning that he has had rheumatism or neuralgia. The similarity of pain, due to irritation of the posterior nerve roots, with that of the more common disease, is sometimes further increased by the influence of barometric changes and enlargement of the joints, which in the spinal affection constitutes the neuro-osteoarthropathies. While it is true that the latter joint troubles are rarely painful, this is not invariably the case, and there is sometimes room for great error.

Early tabes is therefore by no means so easily diagnosed as may be supposed, because of what Fournier¹ calls the "initial polymorphism," which is expressed by symptoms common to, and often mistaken for those of other affections. Among these are the peculiar *accès* of fulgurating pains, which are not always as characteristic and definite as some medical writers aver, gastric crises, ocular paralysis, failure of vision and inability to discriminate colors, vesical disturbance, laryngeal spasm, and a number of other preataxic manifestations.

The pains, however, are the most important indication of the commencing sclerosis of the posterior nerve roots, and may be of very early appearance, constituting the only dominant or even apparent symptom for perhaps even ten or twelve years; but I doubt if there are many cases where some of the lost reflexes may not at the same time also be detected, especially after a year or two. The severity of the peripheral pains, however, does not equal the so called abdominal or thoracic crises which symptomatize tabes and are erroneously attributed to other conditions, often leading to improper medical treatment or surgical interference. The likelihood of error is also increased by the fact that these are of early appearance in one third of

all cases of tabes, and they may be uncomplicated for years.

Charcot first described the so called *crises gastriques* as pains beginning in the groins and running up the abdomen on either side, finally becoming fixed at the epigastrium.² This description is not an altogether broad one, for the erratic nature of the pain is characterized by variations in its appearance, and sometimes it may be accompanied by violent palpitation, vertigo, and vomiting, but these features are not always present. Like the fulgurating pains of the lower extremities, notably in the muscles supplied by the crural nerves, they are manifested by patients who are subject to osteoarthritic changes. Buzzard presented six patients with arthropathy of whom all had crises, and this is the experience of others. The pains, which are more commonly epigastric than of any other variety, differ greatly, not only in their mode of onset and disappearance, but in their relation to the condition of the stomach itself. At the risk of repeating much that is well known, passing reference may be made to the three varieties of gastric pain fixed by Vulpian, Charcot, and Fournier, viz.: 1. Gastric colic (or the grand gastric crises of tabes); 2, vomiting with pain; 3, gastralgia alone.

These seizures do not always occur at the time of eating, although the pain at first often seems to be due to gastric indigestion and there is intolerance of everything taken, even of ice, which is afterward ejected in the form of warm water. The attacks of pain become almost habitual, and the vomiting lasts perhaps for five or six days. The latter may be "dry," or it consists of mucus and perhaps some blood. The true gastric colic has an absolutely sudden appearance, and the acute pain may be localized. Sometimes it radiates to back, thorax, or abdomen; again it follows the course of the intercostal nerves. Not only are epigastric pains familiar, but Raynaud speaks of renal neuralgia, and Stewart of deep seated dorsal and lumbar pains. With the tabetic renal neuralgia there are even at times vesical tenesmus and retraction of the testicle. Bearing in mind the very extensive supply of nerves with sensory functions it is possible to conceive of almost any kind of pain other than those ordinarily known and looked for. Indeed, pain at crisis may counterfeit that from local disease of numerous kinds, and we must be prepared sometimes to disregard the positive qualification that it is invariably of sudden appearance and departure. In some tabetics the attacks are so

¹Alfred Fournier, *De l'ataxie locomotrice d'origine syphilitique*, Paris, 1882.

²A very early reference was made by Romberg to these pains in his classical work, *A Manual of the Nervous Diseases of Man*, Sydenham translation, II, p. 397.

closely connected and apparently so continuous as to convey the idea that they have nothing to do with a spinal lesion. I have known tabetic rectal neuralgias to be mistaken for the sharp pain of cancer, stricture, fissure, or other conditions, and the diagnosis adhered to until an unsuccessful operation had been performed. Such a case is one where a stricture of the anus was alleged to exist, and repeated stretching was resorted to without any result whatever, but the pain was ultimately found to be due to genuine locomotor ataxia.

Another case of this kind was recently seen in consultation. According to this patient's story, about five years ago he consulted a surgeon for rectal neuralgia, who removed hemorrhoids, but with no resulting relief of the pain, which was described as exceedingly violent, burning, and paroxysmal in character, darting chiefly toward the perineum. He subsequently consulted several surgeons, one of whom removed a testicle, while another made a deep posterior incision, cutting through the sphincter ani, but these operations were inefficacious. He finally fell into the hands of an intelligent medical man whose attention was drawn to a deep cup shaped erosion on the ventral side of the glans penis. This was the site of an old venereal sore, supposed to be a chancroid, which had followed an infection when he was a boy of fifteen years. The man is now about forty. Ten years ago he became suddenly deaf in both ears, but chiefly on the right side. About one year ago he had, according to his story, a transient attack of ocular muscular paralysis so that he had to correct his diplopia when reading by changing the position of the book before him. It is impossible to say exactly of what this consisted, though there is to-day an apparent slight internal strabismus. In March, 1912, according to Dr. David Geringer, he was "mentally deficient, indifferent, and melancholic." At the same time there was a marked Romberg sign, and the pupils were then both rigid. According to Dr. J. W. Weeks, who then saw him, he "had a tendency to Argyll Robertson pupils." A Wassermann test was made in May, 1912, which was weakly positive. He then received 0.6 gramme salvarsan by intramuscular injection, and one month later a second test proved negative. The intravenous neosalvarsan injections of which he subsequently received three—0.6, 0.9, and 0.9 gramme—did not modify his pains, which were intense, but "seemed to improve him physically."

I saw him prior to an operation undertaken by Dr. A. B. Johnson for the repair of his mutilated anus and rectum, on November 21, 1912. He immediately said he had a violent crisis, referred to his anus and entire perineum and pain which caused him to draw away and place his hands over the lower part of the abdomen. This pain often occurred with intensified desire to urinate, and a feeling as if an orgasm was to take place. While there was an emotional element, suggesting hysteria, there could be no doubt of the spinal origin of the painful paroxysm. He referred to fulgurating pains in the thighs of more remote occurrence. Argyll Robertson pupils were found, but the knee jerks and Achilles reflexes were greatly exaggerated as were the plantar reflexes. There was some static ataxia, but no motor ataxia. There was

neither tactile anesthesia nor analgesia, but, on the right side especially, the thermic sense was disordered. No Babinski symptom was elicited. There is no difficulty in voiding urine or retaining it, but, owing to the uselessness of the sphincter ani, the patient constantly loses the contents of the lower bowels.

Crural neuralgia of an explosive type is a tabetic symptom, and when it is associated with retraction of the testicle it has led to the delusion that a calculus existed. It is unusual, however, to find pain at the end of the penis, which is a symptom of nephritic colic. The crises suggest involvement of the branches of the lumbar and sacral plexus in the groin, thigh, and hypogastrium. There is rarely scanty or high colored urine, in fact in the tabetic condition the distress is accompanied by a copious and repeated flow of urine. As the sudden liberation and passage of a stone through the ureter is attended by sudden cessation of suffering, such may be the case in the pseudocolic due to the spinal lesion. In many cases of nephritic colic I have found spots of residual tenderness, not only in the lumbar, but in the hypogastric regions as well, and the same thing in hepatic colic over the region of the gallbladder and common duct. My attention has been called to a recent case in which an operation for gallstones was happily averted despite the insistence of the attending physician that the gallbladder should be removed. The medical man who was called in was a competent neurologist, who promptly discovered rigid pupils and other evidences of a long standing tabes without any other dominant symptoms. The diagnosis was made more interesting because of the fact that the patient was a woman, and, as less than two per cent. of all tabetics are of this sex, an additional doubt was raised. In one of my own cases, in a remarkably slowly progressive case, the same thing occurred. Finally, distinct gastric crises made the case more clear, and with this the absence of knee jerks became evident.

Starr refers to a tabetic patient in whom gastric crises existed, and the attacks reappeared at intervals of three or four months for four years before loss of knee jerks and Argyll Robertson pupils were found and made their nature clear. The patient meanwhile had been treated by lavage, special diet, and in other ways with the idea that the condition was simply a gastric one. Most writers have something to say about the errors in diagnosis that have been made in cases of simple gastric ulcer, in fact any gastric condition characterized by ephemeral pain of sudden appearance, with or without nausea or vomiting, may be confounded with the pain of the more serious diseases.

S. Basch,³ in an exceedingly valuable article upon this subject, refers particularly to the distinction between gastric crises and the pain of ulcer or cancer of the stomach, perigastritis, gastrosuccorhea, functional nervous vomiting, gastralgia, duodenal ulcer, cholelithiasis, cerebral vomiting, and vomiting of uremia. I do not think we need concern ourselves with the latter two conditions, although they may at times suggest the central nervous disease, but the importance of mistaking the pain and vomiting of gastric ulcer cannot be minimized. Basch

³S. Basch, *Medical Record*, October 14, 1899.

calls attention to the fact that the pain of gastric ulcer begins usually half an hour after eating, and is situated at a fixed point in the epigastrium. Then, too, there is a coincidence between the time of ingestion of food and the vomiting, "the latter taking place at the height of digestion." The vomited matter as the result of ulcer usually contains free hydrochloric acid and blood, the former in large quantities. In gastric ulcer the pain is as a rule gnawing as it is in cancer. Osler speaks of a form of epigastric pain which is found in ulcer of the stomach at about the level of the tenth dorsal vertebra.

The appearance of tabetic gastric pain is not always in the classical manner referred to by Charcot, but may have existed, as I have said, for years without any other symptom. In some rare examples, one pupil only may at first have become rigid, but not markedly so, and it can be conceived how a careless examination which does not include *both* eyes may lead to error. A perimetric examination will also show in certain cases a contraction of the field of vision for the perception of both colors and white. Reference may be made to a case of doubtful tabes reported by Brudenell-Carter, with slight central impairment of the vision of one eye, and a tendency to pallor of the optic disc; as a rule, however, the fields of both eyes are narrowed. In a lesion of the kind leading to delayed reflex loss, it is probable that the lesion in the posterior columns is circumscribed, small, and confined perhaps more to the root zones of the columns of Burdach and possibly to the lumbar region. The deep pains are those most apt to deceive the investigator, for superficial sensory disturbance, paresthesia, and the like are too characteristic to be mistaken.

The pain of supposed aortic disease is sometimes very intense and may have some other explanation than that generally adopted. So called angina pectoris, if occurring in comparatively young subjects, need not depend upon aortitis or serious valvular trouble, stenosis, or regurgitation. When the sudden pain is disconnected from undue muscular exertion, or even occurs during sleep, the gastralgia may be due to unrecognized tabes; in fact, in over six per cent. of the cases of tabes there is some aortic disease, the actual cardiac lesion being due to local syphilis. In many other cases with no arterial or valvular lesions there may be crises of pain which are of purely central origin, the individual being tabetic. Even in properly diagnosed thoracic aneurysm the pain may sometimes be the sole result of posterior spinal sclerosis, as Clifford Albutt has pointed out. The clinician should never avoid a search for the condition of the reflexes in every case of dorsal or extremity pain, no matter how clear the diagnosis may seem at first, and the patient should be examined with regard, not only to the response of the pupil to direct illumination, but to accommodation, though Argyll Robertson's symptom is of not very early appearance unless the disease at its invasion attacks the upper dorsal segments, which is unusual. It may be present long before there is any pain or ataxia. In my own cases, I long ago⁴ reported the early

presence of diplopia, even without apparent strabismus. These ocular symptoms as a rule come later than the loss of the knee jerk which obviously depends upon a lesion involving the second and third lumbar segments, this being the early region of invasion.

Two forms of occasional pain may resemble those due to disease of the posterior columns, and these are the cramplike abdominal pains symptomatic of arteriosclerosis of the big mesenteric artery, and the intermittent claudication due to arteriosclerosis, as well as to tobacco toxemia. In the former the duration of the pain is not so protracted nor is the pain so intense as in true tabes, while the tonic contraction in claudication is the chief feature, and the distress is nearly always confined to the posterior leg muscles. There are anomalous cases, however, when the pains are most extensive in the course of the crural nerve and the muscles it supplies.

Various hidden and serious arterial disorders may for a very short time deceive the physician, but there is inevitably a clearing up with revelation of the real nature of the condition. I can remember such a case in the person of a patient whose pupils had been rigid for some time, although she presented no other sign of tabes, but had symptoms of advanced thyroid disease, the pupillary contraction being evidently due to an anomalous sympathetic irritation instead of the well known paresis and dilatation usually found. When shopping one day, she was suddenly seized with agonizing abdominal pain and vomiting, and, some hours afterward, by moderate tympanites, and later by obvious intestinal obstruction. There was at first no apparent gastric cause and the association of the pain with the pupillary rigidity suggested a true crisis. There were however, features suggesting something more serious, and the diagnosis of embolism of the mesenteric artery was made by the surgeon who was called in.

In all cases of trunk pain of doubtful nature, an effort should be made to investigate a possible history of earlier sensory disturbance, which in true tabes involves the lower extremities. By many clinicians the distinctive character of the fulgurating pains of the lower extremities is considered to be sufficient without the verifying accompaniment of lost pupillary reflexes and absent knee jerks. Segun,⁵ who was a careful observer, even went so far as to say that fulgurating pains in all men over twenty years of age were of tabetic origin or at least "very suspicious." The very vagrant nature of these cannot be confounded with the pains of gout, rheumatism, or neuralgia, although the twinges of the former resemble the shooting pains of locomotor ataxia. The extreme limitation of the painful regions is significant, for the areas are circumscribed and circular or elliptical or they radiate from some central point. Again, the darting streak of pain is short, and does not follow the course of a nerve trunk; the painful points that remain may be at any cutaneous region and differ from those of neuralgia when the tenderness is found over some foramen or point of escape of the nerve itself. In the recurrence of pain the intervals are

⁴Allan McLane Hamilton: *Nervous Diseases, Their Description and Treatment*, Philadelphia, 1878.

⁵*Boston Medical and Surgical Journal*, December 25, 1890.

very short, suggesting the alternation of a galvanic current rather than the continuity of the direct.

Although modern surgery has at times afforded some relief from the suffering attendant upon gastric crises, the results are not always encouraging, and the pathological explanation of this symptom is still a matter of doubt, consequently the exact diagnosis is difficult. It is by no means clear whether the pneumogastric is at fault, or whether the pain is due only to some condition relievable by section of the spinal nerve roots. Vallas and Cotte, in 1906, opened the abdomen, and after freeing the solar plexus from the celiac axis, stretched the same; relief was asserted. By these reporters and others the sensory fibres from the pneumogastric and sympathetic system are supposed to be at fault in such conditions. On the other hand, Head believes that the sensory fibres innervating the stomach are derived from the seventh to the tenth dorsal roots, and Frazier⁶ has repeatedly performed rhizotomy severing the seventh, eighth, ninth, and tenth sensory roots, with relief in all his cases. In one of my patients operated upon at Johns Hopkins Hospital extensive section of all these nerves, however, failed to afford any permanent benefit and the patient finally succumbed to the great agony of his pain and consequent prostration after his return to his home some years later. This case would point to the pneumogastric origin of the crisis.

So far as I know, no deep operation has been devised for the relief of rectal crises, for the sacral nerves are not only inaccessible, but, if it were possible to reach and divide them, much more serious mischief would be the result.

36 EAST FORTIETH STREET.

A STUDY OF MORTALITY IN FOUR THOUSAND FEEBLEMINDED AND IDIOTS.*

By L. PIERCE CLARK, M. D.,
AND WILLIAM LELAND STOWELL, M. D.,
New York.

In a study of this sort it is necessary to recognize that the different degrees of feeble-mindedness, ranging from the slightest mental defect to that of complete idiocy, are almost invariably accompanied by various grades of defect in physical development. To this latter fact the importance of this study in mortality of mental defectives is largely to be attributed. Although we have to consider here the mortality of a kind of child both physically and mentally handicapped, an early death is not invariably the rule. A belief is common among the laity and many physicians that idiotic children rarely grow to adult life. This mistaken idea is probably fostered, if not engendered, by the teachings in the medical school where the idiots and imbeciles used in the lectures are almost invariably children. While it is true that life is markedly curtailed in the feeble-minded and idiotic, a very considerable number living beyond even the age of forty years is not

uncommon. A study by Clark and Atwood of one thousand deaths showed that while the maximum number died under twenty-five years of age, thirty lived to be over thirty-five, seventeen over forty, and four over fifty years of age.

A point of more social and medical importance than the question of longevity of the feeble-minded and idiotic is the steadily increasing number of these unfortunates in the community at large where they increase in numbers, but wax not strong. We have good authority for saying that three hundred thousand feeble-minded exist in the United States, of whom thirty thousand are in New York State alone, according to data furnished by the State Board of Charities.

While as a general rule the frailty of body and mind in the feeble-minded as a class is conceded, a more exact analysis of the conditions of death and disorders from which this class die is of interest.

During 1903 to 1911, a period of nine years, we cared for 4,275 patients,—2,667 classified as feeble-minded, and 1,608 as idiots. Of the first group 184 died, a mortality of 6.5 per cent. Of the second group 316 died, a mortality of 19.6 per cent. During the same time nearly eight thousand children of normal mental power were treated at the same place with a mortality of 3.38 per cent. The New York City Children's Hospitals and Schools are situated on Randall's Island between the Harlem River and Long Island Sound, now within the city, but an ideal place for children sick or well. Here, under the same management and service, the mortality of the feeble-minded was double that of the normal children. The lower grades, imbecile and idiot, gave a mortality three times that of the feeble-minded, i. e., 19.6 per cent.

There is evidently truth in the statement that as a rule the lower the mentality, the lower the physical stamina and power of resistance to disease; their opsonic index is low. We find varied statements as to the longevity of these people. Vogel said, "fortunately most of these individuals die of convulsions during their first dentition and never attain puberty." Another says that "the mortality of the feeble-minded at Sandelbridge is practically negligible"; while, according to Shuttleworth the feeble-minded have a mortality nine times that of normal individuals. We find in our cases a middle ground, i. e., 11.6 per cent. The total deaths, 547, are arranged below in groups that are of interest, especially when compared with the census reports for the registration area.

The aments frequently die suddenly or after very brief observed illness. We may almost say they have a habit of dying without warning. Mongolian idiots are said to die suddenly more often than do other kinds. This circumstance accounts for the large number of coroner's cases, namely, eleven.

The proportion of pneumonias is so high, about thirty per cent., that we are constrained to believe that the house staff uses that term in sudden cases where there was not time to differentiate the real cause of the death. We do not seem to have so many in the sick wards.

In our institution the deaths from tuberculosis are very low, less than ten per cent., compared with thirty-nine per cent. in some places. Caldecott at

⁶*American Journal of the Medical Sciences*, January, 1913.

*Read before New York Academy of Medicine, Section in Neurology, December 10, 1912.

Earlwood Asylum reports 1,000 consecutive deaths over six years of age with 39.2 per cent. due to tuberculosis, 30.5 per cent. to pulmonary affections, 12.4 per cent. to epilepsy, ten per cent. to pneumonia, and 1.1 per cent. to meningitis.

Referring to our own table, it will be noticed that there was a very wide range of causes of death aside from the usual groups.

TABLE.

PERCENTAGE OF DEATHS FROM IMPORTANT DISEASES COMPARED WITH UNITED STATES REGISTRATION AREA OF 1909.

Infectious diseases:	Feeble-minded.	Idiots.	Children.	Registration area.
Typhoid, measles, scarlatina, pertussis, diphtheria	10.9	9.1	20.8	5.1
Tuberculosis, all forms	8.1	6.5	17.7	11.2
Pneumonia, all forms, including pleurisy and congestion of lungs	28.1	32.0	25.7	9.6
Endocarditis, etc., heart disease	4.5	6.5	3.6	10.0
Diarrhea and enteritis	9.8	9.8	5.5	1.0
Inanition	22.7	16.9	11.6	2.0 ¹
Epilepsy	7.2	7.1	4.2	0.3
Meningitis	1.8	3.2	4.2	1.1
Nephritis	3.6	1.9	2.4	6.6

There also occurred apoplexy, 2; sunstroke, 1; peritonitis, 2; hydrocephalus, 4; Ludwig's angina, 1; erysipelas, 2; pernicious anemia, 1; intestinal obstruction, 1; gastric ulcer, 1; oedema glottidis, 2; sepsis, 1; coroner's cases, 11; cancerum oris, 1; accident, 1.

¹Congenital defects, etc.

Nearly one fifth of the infants born die in less than a year. We cannot begin comparison until two years, and at the third year find the greatest divergence from the census ratio—a difference of six to one. During the "teens" there is very little disparity, but after twenty years there appears a divergence the reverse of that in childhood. The explanation would seem to be that the routine of life in a healthful institution affords immunity from accidents and many diseases due to exposure or special kinds of work, etc.

Among these patients Atwood found about twenty per cent. of two hundred cases analyzed giving positive Wassermann reactions, yet syphilis

was not recognized as a fatal element in any of the 547 deaths. No doubt, however, this disease lowered the vitality and made the inroads of a fatal disease easy.

The average age at death was practically thirteen years, which is less than a third of forty-four years, the present average age limit.

Practically no autopsies are obtainable. The physician's request for an autopsy, following as it does closely upon the announcement to the parents of the death of the child, defeats the acquirement of a permit. Parental refusal for autopsy on an idiotic child amounts almost to an obsession. It is proposed to overcome this defect in our work in the Randall's Island institutions by having a law permitting autopsy in case of death of any custodial inmate suffering from feeble-mindedness, epilepsy, or idiocy provided that the institution shall print conspicuously upon all application blanks used in the admission of patients the fact that the medical authorities have the above stated power in relation to the making of autopsies. Such a law is already in force in many of the State institutions caring for this class, such as the Craig Colony for Epileptics, the Rome Custodial Asylum, and Letchworth Village for Mental Defectives.

About sixty-five per cent. of all custodial admissions to the Randall's Island institutions are discharged to the homes from which they come. No law permits their detention against parental request for discharge. As the vast majority of these discharges are obviously from the high grade mental defectives and therefore those most likely to propagate their kind, the importance of sterilization or segregation of this class is obvious. It is the problem of the future.

PROPOSED REMEDIES.

1. Segregation is the ideal remedy, as it runs counter to no moral, religious, or social law or

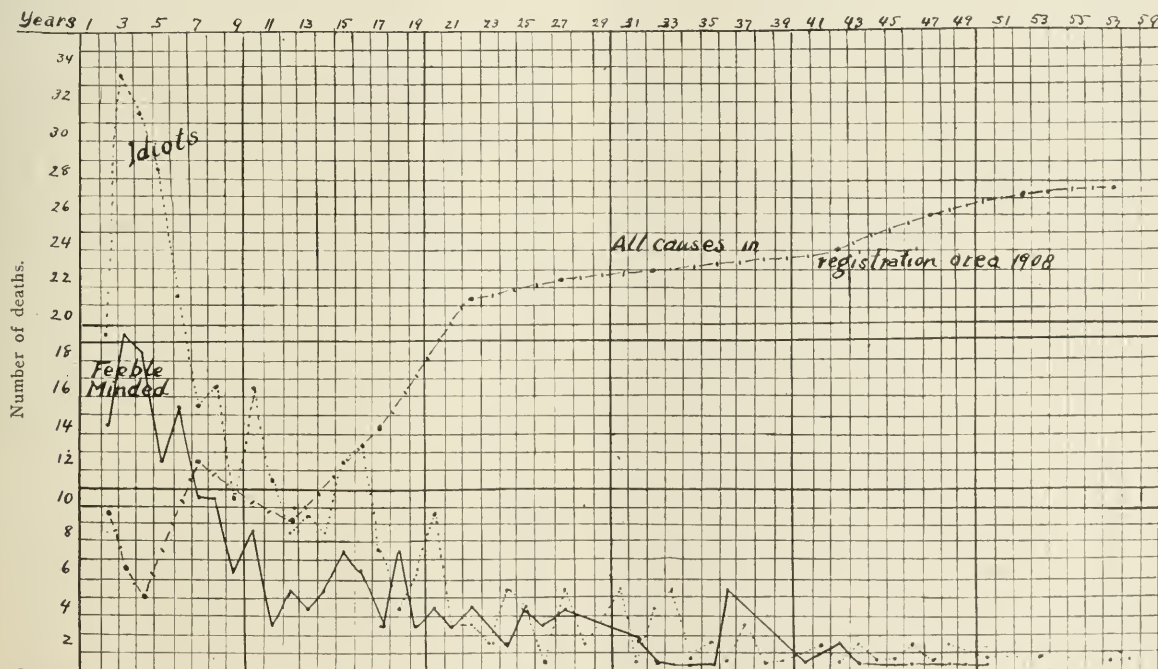


Chart illustrating the age at death of 547 feeble-minded and idiots. Note great number of idiot deaths at three years and general excess above feeble-minded. After early adult years the deaths are few as contrasted with general population exposed to infections, accidents, and acquired ailments.

custom. The practical objections are the enormous expense in providing proper segregation facilities, as the State is now greatly overburdened by taxation in caring for the wards it already has under custodial care, and it is doubtful whether the public can be induced freely to meet the problem in this manner, as it would require ten times the number of institutions we now have.

2. Sterilization of the unfit. A very earnest campaign of education and proof of the harmlessness to the individual is necessary if this plan is to be put in general practice and prove adequate to the size and importance of the problem. At present writing the operation of the laws governing the same in the different States are almost void owing to the general distrust of the whole procedure. Legislation has plainly outrun public sentiment in this direction. Personally, we believe in the effectiveness of this preventive measure and that it works no harm to any concerned.

3. Last, the restriction of the marriage laws so there may be no mating of the unfit. Aside from the fact that the unfit often have little need and infrequently invoke the right of marriage license to propagate, this latter rational but Utopian scheme interests society but little at present. Love in its protean form not only laughs at locksmiths, but gives little heed to social rules and customs running counter to its desires.

As feeble-mindedness is an incurable condition rather than disease, we should be thankful that its continuance is by nature curtailed. In this age every effort is being made to lengthen the life of fit and unfit alike. We have no wish to turn back from this high plane, but in the case of defectives let us make more genuine efforts to prevent their being at all, by segregation, sterilization, and eugenics.

84 EAST FIFTY-SIXTH STREET.

160 WEST SEVENTY-THIRD STREET.

CONTRADICTORY FINDINGS IN THE WASSERMANN TEST.

*Gross Variations in the Results of Different
Serologists.*

BY ABR. L. WOLBARST, M. D.,
New York,

Consulting Genitourinary Surgeon, Central Islip State Hospital;
Visiting Genitourinary Surgeon, People's Hospital.

It is universally agreed that the Wassermann reaction may be considered diagnostic as to syphilis. In view of the large proportion of positive reactions obtained in undoubted luetic cases, the specificity of the test and its reliability, when properly performed, have passed beyond the stage of doubt. Nevertheless there is one feature of the reaction to which, it is hoped, this paper will call attention. The reaction is still dependent for its true results and proper interpretation on the man who makes the test; the personal equation has not yet been eliminated from this most important aid in diagnosis and therapeutics, consequently errors and serious variations in the result are not infrequent.

It goes without saying that the value of the test depends in great measure on the accuracy with which its reagents have been standardized, and on the correct interpretation of its findings. The test itself is simple enough; any tyro can do it after a few weeks of instruction in a laboratory. But it must be evident that the correct result of the test depends upon the proper coordination of the various factors entering into its composition and the absolute standardization of these factors.

Naturally it follows that a test which depends upon so many diverse and uncertain factors must be subject to variation, in so far as the laboratory worker adheres to or departs from the exact requirements of the test. The greatest skill, experience, and laboratory knowledge are necessary for the proper adjustment of the reagents employed, and upon this absolutely exact coordination depends a truthful or untruthful result.

Various writers have given passing notice to this uncertain human element in the Wassermann reaction, but they have spoken of it under the name of "faulty technic." Thus, Carl Bruck, one of the authors of the test, in his excellent work, *Die Serodiagnose der Syphilis*, distinctly states that all positive reactions in diseases other than syphilis, *frambesia tropica*, and leprosy must be attributed to faulty technic.

Castelli (*Journal of the American Medical Association*, LIII, 12), in referring to this feature of the test, quotes Fournet as having gone before the Paris board of health and asked that on account of the extreme difficulty and delicacy of the Wassermann test and its invaluable utility to humanity at large, the French government should establish laboratories supervised and conducted by competent biologists who would do nothing else but the Wassermann test, and to open them free for the medical practitioners.

In line with this idea, B. Sachs (*loco citato*) admits that "there are so many possibilities of error in the performance of the test, that credit can be given to results only if those working by it are known to be thoroughly conscientious and capable."

Another word of warning is given by Kaplan (*NEW YORK MEDICAL JOURNAL*, September 7, 1912), who states that "the last factor, and by no means the least, is the ability and experience of the individual worker. The number of positives from beginners is dangerously large, stamping innocent people with syphilis."

In view of these and numerous other expressions of opinion along similar lines, it does seem passing strange that very little attention has been paid to the "man behind the test," if we may use this expression. We read in the literature of reports in which a positive or a negative result was found in a certain case or series of cases, but we are not told who made the tests and what precautions were taken by the serologist toward absolute standardization of his reagents. Noguchi himself warns us that an excess of amboceptor for sheep's blood corpuscles in the blood leads to hemolysis, even in the presence of a syphilitic antibody (*Journal of the American Medical Association*, LIII, 12). On the other hand, Fox has pointed out the fact that when the serum is used in an active state the test is thereby rendered too delicate and too liable to give

positive reactions where negative reactions should be given (*Journal of Cutaneous Diseases*, August, 1909), and this is confirmed by Boas, who has shown that by using active serum, more positive reactions were obtained in nonsyphilitic cases than was previously supposed to be possible (*Berliner klinische Wochenschrift*, 9, p. 400, 1909).

These observations seem to contradict the dictum of Blaschko, which is confirmed by others, that the Wassermann reaction has never given positive findings in the certain absence of syphilis. Nevertheless, when we consider the possibility of error, due to improper coordination of the reagents employed in the test (principally an excess of antigen), we can very readily see that there is no actual contradiction in these conflicting sentiments. Not only the performance of the test, but its interpretation requires the greatest care and skill. W. J. Butler has strongly pointed out this correlation between performance and interpretation of the test. In a strong paper (*Journal of the American Medical Association*, LIV, 14) he says: "The proper performance and interpretation of the serum reaction for syphilis demands of the operator a considerable acquaintance with laboratory technic in immunity work and experience with the reaction itself, for otherwise the results are not dependable. Discrepancies in results obtained with the Wassermann technic and modifications of it, not infrequently arise from overenthusiasm and shortcomings in one's own work."

As a clinician, I beg to call attention to the great importance of the human element or personal equation in the Wassermann reaction. Not enough emphasis is being given to this phase of the subject, because we are usually satisfied with results, without asking how and by whom these results were obtained. The point I wish to urge is that the source of error liable in the test, due to faulty technic or other human causes, must be recognized in our daily work. It is time that we realized and fully appreciated the fact that our laboratory reports may be and often are faulty. Who knows how many men and women are living a life of dread and fear as a result of a conviction of syphilis by an untruthful laboratory report. If, as the legal phrase has it, it is far better that a thousand guilty men go free than that one innocent man be punished, is it not likewise far better that a thousand real syphilitics go undiscovered than that a faulty report shall condemn an innocent man or woman to lifelong dread and unceasing treatment, with all that these things convey? D. M. Kaplan states the case admirably in a paper on The Practical Value of the Wassermann Reaction (*Medical Record*, June 15, 1912), when he says:

In the Wassermann reaction, the stumbling blocks are many and can be overcome by experience and patience only. The beginner makes many nonluetica sera positive, the theoretical worker does the same to a lesser extent, and the mature worker fails to report many syphilitic sera as positive. The confidence that the general practitioner places in the Wassermann reaction makes the former two a menace to his patients and jeopardizes the doctor's private practice. The harm done by the experienced worker is comparatively mild, as sooner or later the clinician will find the true cause of the trouble. It is by far less harmful to err with a negative report on a luetic serum than

render an innocent person uncomfortable with the knowledge of having been made syphilitic by the laboratory.

It must have been the experience of every clinician who has employed the Wassermann reaction, either as corroborative of his diagnosis or as a therapeutic guide, that the reaction has an inexplicable perversity at times, that is not only perplexing, but absolutely embarrassing. Who has not been told that a serum from a patient with active lues gives a negative reaction? And, on the other hand, when our diagnosis has been negative, based on the absence of clinical manifestations and corroborated by the negative history of the patient, have we not been mortified to be told by our laboratory slip that the serum has given a positive Wassermann reaction? In the past, before the days of Wassermann, we thought we were able to make a diagnosis in the average case by a careful study of the clinical symptoms. If we were in doubt, we consulted our colleague, and if both of us agreed on the diagnosis, we were usually right. To-day, however, many of us have come to believe implicitly in the dictum of the laboratory, notwithstanding the clinical evidence. And there are among us men who would invariably accept the positive report of the serologist in preference to the negative diagnosis of any number of clinicians, based on the utter absence of luetic phenomena and a nonsuggestive history. Nevertheless, the very men who do the best serological work, admit that errors are not only possible, but not uncommon.

The clinician, in his daily work, has a right to expect that the serologist is doing his work properly. When we place serum in his hands for a report, we give evidence of our implicit faith in his ability and integrity, both as to performance of the test and its interpretation, as well. Nevertheless in the course of this study of the subject, competent and honest serologists have sent me contradictory results on the same sera. One man has reported a serum *positive*, while another, equally competent, as far as I know, has sent a *negative* report on the same serum taken at the same moment in another test tube. Whom are we to believe? Which report is correct? How are we to reconcile these contradictions with our clinical findings and what shall we tell our patient?

When we ask these questions of our serologists, they shrug their shoulders and say "faulty technic somewhere." True, but where is the serologist who is ready to admit that *his* work is not done in strict accordance with Wassermann's instructions?

In these circumstances, there must be something wrong, either with the test itself, or with the factors entering into it. Exact standardization seems to be the pivot around which the accuracy of the test depends, yet there does not appear to be any way of telling who is using properly standardized reagents. The general clinician cannot know these things, and still his clinical experience and his reputation are weighed in the balance and often made to suffer as a result of improperly standardized reagents or faulty interpretation on the part of the man upon whom he relies for accurate information.

A case from my personal experience in this regard is of unusual interest. A young man, with absolutely no symptoms of syphilis and a vagu-

history of having suffered from a suspicious angina years ago, was informed that a Wassermann test might clear up the doubts which we entertained as to his ever having had syphilis. Blood was drawn in two test tubes and sent to two laboratories. Laboratory A reported *negative*; laboratory B, with equal certainty, reported *four plus*. Four days later blood was drawn again in three test tubes. One tube was sent to laboratory A, and the report came back as before, *negative*; the remaining two tubes were sent to laboratory B, under different names, and both were reported *positive*, for the second time. Here was certainly a very unsatisfactory state of affairs. One laboratory examines two specimens, four days apart, and reports them both *negative*; the other laboratory examines three specimens and reports them all *strongly positive*. The patient was clinically *negative*. Ten days later blood was drawn for a third time and sent to a third serologist, who in turn reported *positive*. It is to be regretted that no check was made on this examination. What is the clinician to do in the presence of these conflicting results, and what is he to tell his patient?

For some time I have been studying this feature of the Wassermann reaction, and I herewith submit the findings in thirty-seven cases. To avoid error resulting from improper sterilization of the test tubes, absolutely new tubes were used, each tube taken from its paper wrapper. They were thus perfectly dry and beyond suspicion of contamination. The blood was obtained in the usual way by venous puncture and permitted to flow continuously into two or three tubes. About five c. c. were collected in each tube. When sent to the same laboratory different names were attached, so as to avoid any possibility of mental suggestion on the part of the serologist.

It will be seen by the following data that the reports agreed in twenty-six cases (seventy per cent.). Disagreements in the findings occurred in eleven cases (thirty per cent.). Of the latter it was found in six cases that the variation was not very great, there being two cases varying from *doubtful* to *positive*, and four cases varying from *doubtful* to *negative*. In five cases, however, there was a distinct contradiction, one laboratory reporting *positive* and the other *negative* on the same serum. It is thus seen that in five cases out of a total of thirty-seven (fourteen per cent.), the serologists flatly contradicted each other as to the result. It will also be observed that certain serologists uniformly obtained *positive* results, while *negative* results seemed to predominate simultaneously at the hands of the other workers. I have not attached any importance in this study to the subject of the clinical condition of the patient. For present purposes this seems to be unnecessary, inasmuch as this paper deals with the diversity of the findings rather than with their correctness. However, in the table, I have stated the patient's clinical condition simply as a matter of interest. The names of the serologists have not been mentioned, also for the obvious reason that it would be immaterial and likewise unnecessary. The various laboratory workers have been designated as A, B, C, D, and E.

TABLE.

Showing Diversity of Wassermann Reports on the Same Serum Taken Simultaneously.

Case:	
1, Serologist A, <i>positive</i> ; Serologist B, <i>negative</i> ; clinically <i>negative</i> .	
2, Serologist A, <i>positive</i> ; Serologist B, <i>negative</i> ; clinically <i>negative</i> . (two tubes)	
3, Serologist A, <i>positive</i> ; Serologist B, <i>negative</i> ; clinically <i>negative</i> .	
4, Serologist A, <i>positive</i> ; Serologist C, <i>negative</i> ; clinically <i>negative</i> .	
5, Serologist C, <i>positive</i> ; Serologist E, <i>negative</i> ; clinically <i>positive</i> .	
6, Serologist A, <i>positive</i> ; Serologist A, <i>doubtful</i> ; clinically <i>negative</i> .	
7, Serologist A, <i>positive</i> ; Serologist A, <i>doubtful</i> ; clinically <i>positive</i> .	
8, Serologist A, <i>negative</i> ; Serologist A, <i>doubtful</i> ; clinically <i>positive</i> .	
9, Serologist A, <i>negative</i> ; Serologist A, <i>doubtful</i> ; clinically <i>negative</i> .	
10, Serologist A, <i>negative</i> ; Serologist A, <i>doubtful</i> ; clinically <i>negative</i> .	
11, Serologist C, <i>negative</i> ; Serologist A, <i>doubtful</i> ; clinically <i>negative</i> .	

A review of the foregoing data shows that in four cases clinically *negative*, serologist A found the reaction *positive*, while B and C found them *negative*; in one case clinically *positive*, A found the reaction *positive* and E found it *negative*. It is also seen that serologist A differed somewhat in his own reports of the serum of the same patient, submitted to him at the same time under different names. Thus in two cases he reported *positive* and *doubtful*, and in three cases he reported *negative* and *doubtful*. Serologist C found one case *negative* which A reported *doubtful*. I attach little importance to these variations between *positive* and *doubtful*, because either of these reports may be accepted as an indication for further treatment; but there is considerable importance in the discrepancy between *negative* and *doubtful*, owing to the hesitancy with which treatment is instituted in the presence of a *negative* report as compared with the general feeling that a *doubtful* report is suggestive of the need for further treatment.

On the other hand, the care with which serologist A has done his work may be judged from the fact that his reports have agreed absolutely in nineteen cases in which two or more sera from the same patient were examined by him under different names. Among these he found eleven *negative* cases, seven *positive*, and one *doubtful*. In each of these nineteen cases there was no diversity in the reports, indicating that the work was being carefully done and equally carefully reported. Nevertheless this serologist was flatly contradicted by another serologist in five cases (twenty-one per cent.), and his own reports on the same sera under different names also differed somewhat in five cases (twenty-one per cent.). We may therefore conclude that however carefully the Wassermann reaction is done, there is a fairly large percentage of probability that contradictory results will be obtained by several serologists examining the same serum at the same time. Consequently the inference is clear that whenever serum is to be examined, the results of the test are subject to variation at the hands of different serologists and that certain steps must be taken to overcome these chances of variation.

It thus appears to be absolutely necessary for us to check up our work by submitting the serum to more than one serologist, if we would be certain as to our result, and when these serologists differ, a third or a fourth test must be made by still other workers. The preponderance of opinion must be accepted as the correct result in much the same way that we accept the preponderance of opinion on any other matter involving human thought and action. Since it is demonstrable that the Wassermann reaction is dependent for its accuracy on the character

and ability of the man who does the work, it must necessarily follow that his report is essentially his *opinion* of the reaction given by a particular specimen of blood submitted to him for analysis. And since opinions may differ according to innumerable elements that enter into the personal equation, we are forced to the conclusion that any one man's opinion, be he ever so learned and experienced, may be wrong, and consequently his reported result is necessarily wrong. Consequently we owe it to our patients, as well as to our professional reputations, to use every means at our command to secure an opinion that is as nearly the truth as it is possible for us to obtain.

We must, therefore, submit the serum for examination only to such men as we are certain will do the work honestly and skillfully, according to the most approved methods. Novelties and short cuts have no place in this work, when by such innovations the element of risk and uncertainty is introduced. We should always know the man who is doing the work, so that in speaking of a *positive* or *negative* seroreaction we can name the serologist who performed the test. His work should have the same reputation and standing as the work of any other consultant or expert brought into a case for his expert opinion. True, any expert may err, and so may the serologist, if he is human. It is for this reason that the work of the expert whom we select for this purpose shall be checked and controlled by one or more equally good experts to whom we submit the serum drawn simultaneously from the patient. Now, we have the opinions of two or more experts specially chosen for their fitness and high technical standing. Their results ought to agree if the Wassermann reaction is all that is claimed for it. And if their results do agree, we are bound by all the rules of common-sense to accept such opinion as the sum total of our knowledge on this particular subject. If, on the other hand, they disagree, as they often do, and as any other experts equally often do, it is our duty to accept the majority opinion or submit another quantity of serum, either to the same or to other serologists, for another test. We must accept the opinion of these men as we accept our legal opinions, and give them the dignity and power of that which we call *law*. We create law by the majority opinion of the men who sit in judgment as experts in their chosen work, and we must deal with this complicated question of the seroreaction in absolutely the same manner. If three competent men examine the same serum, and two agree against the third, I think it is proper and just to our patient to accept the verdict of the majority and act according to their judgment. In this way, and in this way only, can we ever be sure that our patient is receiving the best possible judgment on his case. I know of nothing that is so unfair and cruel to our patient as to impose on him a conviction of syphilis as a result of a faulty Wassermann reaction made by one serologist. He is entitled to the truth as nearly as we can determine it, and there is no better or more certain manner of determining the truth in any given case than by having two or preferably three skilled serologists pass judgment independently of one another. In this way

alone can we do justice to our patient, as well as to the man whose name the test bears.

CONCLUSIONS.

1. The Wassermann reaction is dependent for its result on the skill and knowledge of the serologist.

2. The results of the test depend in great measure on the absolutely perfect standardization of the reagents used; these are subject to variation in the hands of different serologists.

3. As a result of these differences, diversity in results is not infrequent, but insufficient attention has hitherto been given to this particular feature of the reaction.

4. It is a gross error to accept the findings of one serologist as conclusive, *particularly if his result is positive and the diagnosis dependent on his report*; his work should be checked up by one or more equally competent workers.

5. If two or more competent serologists report on a given serum, the majority opinion may be accepted as fairly conclusive; frequent reexaminations are always of advantage to the patient.

6. Of thirty-seven cases thus studied for discrepancies, agreement of findings took place in twenty-six cases (seventy per cent.); absolute contradiction of findings took place in five cases (fourteen per cent.); slight disagreements took place in six cases (sixteen per cent.).

7. All mention of results of the Wassermann test, in the literature or elsewhere, should be accompanied by the name of the serologist who made the test, in order that the measure of accuracy and skill employed may be estimated.

8. The serologist should be selected with the same care and caution as is exercised in the selection of a consultant or expert in any other branch of medical science.

113 EAST NINETEENTH STREET.

THE DAY CAMP FOR TUBERCULOSIS.*

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The day camp idea, a place where patients may spend the day in the open, away from the squalor of their tenements and alleys, under medical supervision, has been applied elsewhere with success, notably in New York and Boston. It is necessary briefly to explain the reason and need for it in Philadelphia. The principle of tuberculosis dispensary work among the indigent in Pennsylvania is, or should be, to send at once every patient with open tuberculosis who applies (and who can go away) to a sanatorium for a preliminary course of education, training, segregation, and cure. This is made potentially possible by the splendid sanatorium and infirmary facilities offered by the State; but the patients who are capable of improvement cannot live indefinitely in a sanatorium (and it is

*Read at the Philadelphia County Medical Society, November 27, 1912.

neither advisable nor necessary that they should), so the most effective work of the dispensary consists in following the return patients into their homes and bending every effort to apply, to continue, and supplement in the homes the work of education, prevention, and cure begun in the sanatorium. The function of the dispensary is thus in the first instance a distributing centre for the sanatorium. This does not for a moment imply that the dispensary should not from the admission of a patient begin its propaganda of education and uplifting in the home, but, both as applied to the patient himself and through him to his family and surroundings, this can be infinitely better carried out *after* his sanatorium experience than *before*. The attempt to treat patients in their homes without sending them away is a good one, perhaps, in theory; but does not work out practically among the poor, certainly not in the majority of cases or as a principle. This is so for a number of reasons, among which might be mentioned the ignorance, carelessness, and prejudice inherent in poverty; lack of sustained effort or consistency of purpose; physical difficulties to be overcome in the home surroundings, overcrowding, lack of any available facilities or air space for a cure; inability to buy proper food, lack of facilities and ignorance as to how to cook it; the deadening worry and mental unrest of continuous and pressing want, where the wage earner or one wage earner is incapacitated (at best the combined family income is inadequate for more than a bare subsistence). These and other reasons which could be cited, make it necessary that the sick man or woman should be sent away and the home in many cases reorganized. In other words, the best principle in handling these cases is not to treat the sick man and support his family, which must usually be done if the burden of his sickness is to be borne in the home, but to relieve the family of the burden and the danger of the sick member and make them self supporting.

But even with the remarkable sanatorium facilities furnished by the State Department of Health, it is practically impossible to send *every* patient away. There are always those who will not or cannot break home ties, even temporarily and for the best interest; parents who cannot leave their children; wives or husbands who cannot or will not be separated; children whose parents refuse to allow them to go. Then there are the return patients whose homes offer no possible facilities for taking a cure and who are yet unable to work.

It was for this relatively large group of cases that the day camp was first opened two summers ago, and kept open from July until December, 1911, and from May until November, 1912. This latter period is the one I hope we can stick to in the future for obvious climatic conditions.

It is unnecessary to go into the subject of organization or the results of treatment in any great detail, for such a report is filed with the College of Physicians, where it may be consulted by those particularly interested.

Suffice it to say that we were able to raise a fund of \$1,843, entirely by private contributions, and that a pier on the Delaware River front was secured by the kindness of Mr. E. Meyle, president of the

Independent Pier Company, the cure chairs were loaned by the Shut-in Society, so that of the foregoing sum the total cost for construction was for a railing and pavilion, i. e., \$287.55. This left approximately \$1,550 for maintenance and it cost on an average of 35 cents a day for each patient. For the second year we secured from the same source a pier better adapted to our purpose, and Mr. Meyle further fitted up a nurse's office and toilet room for us, so that of the \$1,650 raised for the second year's work, every cent was spent for maintenance. Both piers were very accessible by trolley, the one being at the foot of Bainbridge Street and the other at the foot of South Street.

RÉGIME AT THE CAMP.

The camp was open daily, except Sundays, with a trained nurse constantly in attendance, and patients were required to report by 9 a. m. and stay until 5 p. m. A pint of milk with bread and butter was served at 10 a. m. and at 3 p. m. to each patient; and a good, hot lunch at noon. Each patient who could not afford to pay his own carfare received two car tickets a day, one to come and one to return. Regular attendance was required, but each patient reported every two weeks to his physician or the dispensary that had sent him in, and was supervised in his home by the nurse from his own dispensary. Is it any wonder that these people, many of whom had never known what it was to get a wholesome full diet, or a day full of fresh air, should gain in health, weight, and spirits under this fair régime?

In order to systematize the work, all patients were required to apply to the writer for a card of admission, and no distinction of creed, nationality, or color was made, the only requirement being that the case was under the care of a doctor who wished it to be admitted and was not too serious, i. e., requiring bed treatment. Only three patients were refused admission, all on the ground of being too ill.

All of the cases were moderately advanced or far advanced, though ambulatory. The capacity of the camp was thirty patients a day. The camp was practically full all along.

It has been impossible for lack of time yet to tabulate the second year's report, but it is quite similar to the first, and the few facts I shall cite are for the season of 1911.

Of the ninety-one patients treated at the camp, fifty-nine were United States citizens (of whom fifty-two had been born in the United States) and thirty-two were foreign born and unnaturalized. Ten foreign countries were represented in our list. There were forty-four males and forty-seven females; and a family history of tuberculosis in forty-two of the ninety-one patients.

The question of family income is interesting because it illustrates well the poverty of the people with whom we were dealing. There was an average of four persons in each family and the average income from all sources of the family was \$27 a month and the rent \$10; or, looked at in a little different way, the average monthly income for each patient in this group was \$6.75 and the average monthly rent \$2.50.

The majority of the patients were simply delighted with the régime at the camp, which is shown by the fact that of the ninety-one patients, seventy-three attended an average of forty days each. Eighteen patients attended less than one week. Unfortunately, among the very poor and ignorant, there is always wanting persistency of purpose. When a patient attended irregularly, it was reported to the nurse having charge in his home, and if following her efforts he did not do better, he was discharged. Among these eighteen patients were some, too, who were found after admission to be really too ill and were referred to hospitals for bed treatment.

The total weight gain at camp by those who staid more than one week, i. e., seventy-three patients, was 175.75 pounds. The largest individual gain was twenty pounds. The total weight lost among the ninety-one patients was thirteen pounds, and there were twenty-four patients whose weight remained stationary; that is, the weight on admission and on discharge varied less than one pound.

A regular daily hospital chart was kept, by the nurse, of each patient throughout his stay and the weight recorded each week.

Upon the discharge of a patient the results of treatment, that is, as to whether he was improved or unimproved, was estimated upon the general condition, and not upon gain in weight alone. This latter was considered as one factor only, and general and local functional betterment was used as the criterion.

Only the seventy-three patients who stayed more than one week were classified as improved or unimproved; of these, fifty-eight were improved, approximately eighty per cent., and fifteen unimproved. It will be seen in the detailed report (College of Physicians) that there were four patients classified as unimproved, all of whom gained in weight and whose total gain was 6.75 pounds, but in these cases there was practically no improvement in the temperature, pulse rate, cough, and strength.

It is interesting to note a few of the reasons for discharge from the camp, as it gives an idea of how largely we tried to avail ourselves of, and cooperate with other institutions dealing with the tuberculous sick, and how the effort was continually made for the more permanent care of the cases.

There were placed in Mont Alto twenty-eight, in Chestnut Hill four, in Eagleville four, in homes in the country eight, and twenty of our patients were able to return to work. The next to the last item related mostly to children, who, through the children's bureau or other agency, we were able to send to the country. Under the heading "returned to work," is included a number of patients for whom suitable work was found, some who were able to return to their own work, and a number of wives and mothers who were able to resume their household duties.

Along this same line may be mentioned the institutions and doctors who sent cases to the camp, a fairly good showing, but still not as general as we should be glad to have it. Four institutions availed themselves of the camp, the State Dispensary, the Phipps Institute, and the tuberculosis dis-

pensaries of the University and Presbyterian Hospital; and cases were referred by sixteen different physicians.

The organization of the camp consisted of a Board of Friendly Visitors and a corps of physicians who voluntarily visited the camp; one day a week being assigned to each, with the view of having daily medical attendance. It should be repeated, however, that every patient while at the camp remained under the care of the physician sending him in and reported to him regularly, so that the visits of the camp physicians was more of a tour of inspection and encouragement than for any strictly medical duties or need.

In conclusion, let me say that without the very real interest and help of Mr. Edward B. Smith, the treasurer of our organization, this good work could hardly have been carried on.

1932 SPRUCE STREET.

MAIMONIDES THE PHYSICIAN.*

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The advent of the victorious Mohammedan armies into the southwestern peninsula of Europe carried in its wake the various educational and scientific influences that were to affect the whole course of later European culture. The Saracens brought to Spain, under protection of the banner of the Crescent, the stored up treasures of ancient learning. While churchridden Europe reposed ignorant of the wealth of knowledge and wisdom that the pagan writers had contributed to civilization, the peaceful Arabs and Moors interpolated their studies of the Koran with readings from the Arabic translations of Greek and Latin philosophers. Unlike the earlier Moslem warriors, the Saracens preserved and cherished the treasured volumes which they found in the conquered cities. It is related of an immediate successor to Mohammed that he ordered his victorious general in Alexandria to destroy the papyri that were stored in the famous library, for the reason "that the Koran contained all that was worth knowing, and that the other books were either superfluous, if they corroborated, or pernicious, if they denied the truths of the Holy Writings." It is fortunate, however, that not all of the Moslem priests were so fanatic.

The battle of Xeres de la Frontera, in the year 711, decided the destiny of the Spaniards, and of the Jews that had found a haven in the Pyrenean peninsula. Of all the cities which submitted to the Moslem yoke, Cordova alone excelled in commerce and in letters. There, in the houses of learning, men of fame studied and taught, and there also, in 960, the Jews founded their first academy. The Moors and Hebrews lived in peace with one another, and good naturedly endeavored to out rival each other in literary and philosophical attainments. In the twelfth century, Cordova was at the zenith of its glory under the prosperous reign of the noble Abderhaman.

*From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons.

On the fourteenth day of Nissan (March 30, 1135), on the anniversary of the delivery of Israel from Egyptian bondage, there was born to the famous Rabbi Maimon of Cordova a son who was named Moses. Of the pedigree of Moses we know that his immediate six ancestors were distinguished by the title "Wise," and there is a legend that his family could trace its kinship to the monarch David. Buxtorf quotes Maimonides thus: *Ego Moses filius, Majemonis judicis, filii Josephis sapientis, filii Isaaci judicis, filii Obadiæ judicis, filii Salamonis, filii R. Obadiæ judicis, etc.* There is a tendency at all times to halo the life of a great and beloved man with romantic legends. The birth of Maimonides has also been touched by the artistic finger of romance. His father, so runs the story, had decided never to marry, but there came to him several times at night a vision which bade him take to his nuptial bed a pure maiden of lowly birth. He obeyed the heavenly command, and married the daughter of a poor craftsman. His wife redeemed the life of her only son, Moses, by sacrificing her own in giving birth to him. Rabbi



MAIMONIDES.

Maimon, his father, married a second time, and by his second wife had two children, a daughter, and a son, David.

Concerning the early life of Maimonides various myths are extant. Rabbi Gedaliah relates that in his youth Moses was very unruly and impious so that he had to be constantly upbraided. This irritated the lad, and he fled his native city. He wandered about in an ungodly fashion until once he accidentally visited the synagogue of a distant town. He slept in the synagogue and the spirit of the Lord came down upon him, so that he vowed he would devote his life to a study of Holy Writ. He was instructed by Rabbi Megas, a famous student of the law, and his progress was so phenomenal that his fame spread wide. Once, after many years' exile, he returned to his native town, Cordova, and delivered a discourse upon the Sabbath, which so pleased his father that they became reconciled. There is also a tradition that

Maimonides and his preceptor spent twelve years in a cave, fasting and studying the law.

There is no evidence, however, that there is any truth in these legends. It is almost positive that Moses led a very quiet life as a boy, and that he profited well from the kind and learned guidance of his father and teacher.

It was not destined, it seems, that the calm peace and contentment should continue without interruption in the Saracen towns in Spain. From the northern coast of Africa there came a fanatic band of destroyers, who proceeded with fire and sword to reclaim peaceful Spain and turn it into a very den of chaos, where intolerance was boasted of and where lack of conformity to Islam faith was punished by death unless the "unbeliever" had the good fortune to exile himself ere the hand of the Mosque was laid upon him. Under the leadership of Yussuf, son of Teshfin, who was influenced by the zealots, Abdallah and Abdelmumen, the Almohads, a fierce and warlike tribe, waged warfare against the peaceful inhabitants of Spain. They were entirely successful in their ventures, and, in 1148, conquered the beautiful town of Cordova, and vandallike destroyed its beautiful buildings and drove out all who would not accept Islamism.

The story of the wanderings of the family of Maimonides is not known. In 1150, we find them in Fez, where, though they persisted in the Hebrew faith, they were left unmolested. When twenty-three years of age, Maimonides began a commentary on the *Mishnah*, which, after laborious study, he completed in 1168. In his writings and explanations he was ever at variance with his predecessors and contemporaries, who delighted to indulge in luxuriant phraseology and vague symbolic blandishments. He made it his aim to eschew prolixity for brevity, and to confess ignorance where positive knowledge was not forthcoming. It was he who said that it is possible for a wise man to be taught by a fool, and he was fond of remarking to his scholars: "Teach thy tongue to say, I do not know."

During all the stress and strain of a very busy life, Maimonides's pen was never idle. He wrote on astrology, on metaphysics, on general philosophy, on religion and the law, and on medicine. His writings on the latter I shall review in detail later on. I shall touch but briefly on his varied non-medical tasks.

Maimonides was constantly studying and writing. "While my mind," he wrote, "was ever troubled amid the God decreed expatriations from one end of Heaven to the other, I wrote notes on many a *halachah* on journeys by land or while tossed on the stormy waves at sea." In 1158, he wrote a short treatise on the Jewish calendar, entitled *Maamar-ha-ibbur*, and an exposition on logic, *Milloth Higgayon*, to which Moses Mendelssohn, many centuries later, added a commentary.

It was his great work, *Jad Chazekah*, The Strong Hand, also called *Mishnah Hathora*, The Repetition of the Law, that established Rambam's¹ great fame as a jurist. This labor lasted twelve years, and as Prideaux states, "in spirit of elegance and and perspicuity of style, as well as methodical ar-

¹Rambam, i. e., Rabbi Moses ben Maimon.

rangement, it fairly vies with the Roman civil code or with any code of law extant." It may be regarded, says Peppercorne, as a compendium of whatever is worthy of notice in the Talmud. The laws relating to the poor and the stranger are especially worthy of remark.

At twenty-five years of age he wrote a dissertation on apostasy, *Maamar Kiddush Hashem*, in which he exhorted his coreligionists not to abandon the Jewish faith. Nevertheless, he argued that a soft word, if it will turn away wrath, is better far than an obstinate, if more heroic, brutal retort. In pleading with the Hebrews to keep the Law of Moses and the faith of the Covenant, he remarked, however: "If a man asks me, Shall I be slain or utter the formula of Islam? I answer, Utter the formula and live."

His *Resurrection of the Dead* he wrote at the age of fifty-five. His thirteen articles of *Confession of the Faith* are still adhered to by modern orthodox Jews. Perhaps the most famous work of Maimon is the *Guide to the Perplexed*, *Moreh Nevuchim*. It is a discussion of various metaphysical subjects with dissertations on abstract philosophical and religious problems. We find here treatises on good and evil, on the creation of man, on the atomic philosophy, etc.

While in Fez the Maimonides family thrived well in wealth. David, the brother of Moses, was a diamond merchant and was quite successful in his undertakings. While in Cairo, where Maimonides later resided, his father died. His brother perished at sea during one of the voyages to the Orient, and with him the whole wealth of the family was lost. Of the matrimonial life of Rambam little is known. He had a daughter and a son, Abraham, who was also a physician and succeeded his father in the high positions in the Sultan's court.

The death of his brother left Maimonides without financial support, and he was compelled to earn his own livelihood. He adopted the medical profession, and after several years of practice and study, became a recognized authority on medical matters. He was appointed private physician to Saladin's vizier Al-Kadi-al-Fadil-al-Baisami, who recommended him to the good graces of the royal family. A certain Arabic historian, according to the Jewish Encyclopedia, declares that the position of court physician was offered to Maimonides by the King of Franks in Ascalon, Richard Cœur de Lion, but that the honor was declined.

In 1179, the brave and learned Sultan appointed Maimonides as chief court doctor. He held the position with great dignity and marked esteem until the death of the sovereign, and was reappointed by the successor to the royal throne.

Maimonides was a very busy and conscientious practitioner. One can obtain a glimpse into the busy life of the famous doctor in perusing a letter that he wrote to his friend, Samuel ibn Tibbon: "I live in Egypt at a distance of nearly two Sabbath day journeys from al-Cairo, where the Sultan resides. The duties of my appointment demand regular attendance on him every morning. If there is nothing amiss at the court, I return home toward noon, almost famished for want of food; on my return I find the approaches to my house crowd-

ed with Gentiles and Jews, men of all ranks, impatiently awaiting my return. As soon as I have taken refreshment, I examine my patients until I become so overpowered with the fatigue of speaking and prescribing that my speech almost fails me before I can conclude." In a letter to his favorite pupil, Joseph ibn Aknin, he thus remarked of his medical career: "You know how difficult this profession is for one who is conscientious and exact and who states only that which he can support by argument or authority."

Among the Jews the science and practice of medicine were, from the earliest times, considered of great dignity and worthy of great honor and respect. While yet very young Moses ben Maimon, without entertaining any idea of ever practising the healing art, studied anatomy, physics, and botany. Later on he carefully studied the writings of Galen (200 A. D.) and of Avicenna (eleventh century). The medical art seemed to Maimonides a holy calling, and he practised it as if it were his religious duty. The purpose of medicine, he considered, "was to teach humanity the causes of ill health, the correct dietetic hygiene, the methods of making the body capable of useful labor, how to prolong life, and how to avoid disease. It thus directly elevates the human being to a higher moral plane where the pursuit of Truth is possible and where the happiness of the Soul is attainable."

In his *Commentary to the Mishnah* he gives various medical conclusions and opinions upon the treatment of disease. In his great *Book of Law*, he devotes a separate chapter of the *Sefer Hamaddah*, to the medical art. He recommends certain dietetic rules, following the prevalent medical theories of his day. It is interesting to examine, even if cursorily, these regulations in dietetic hygiene.

Sound health of body is an unavoidable prerequisite in the development of the soul. It is, therefore, the duty of all persons to avoid all harmful things. One should eat and drink only when one has hunger or thirst; but even in these cases one must not fill his belly full, but allow about one quarter of the appetite to remain unsated. During meals one should not drink water; one might use a little wine mixed with water. The wines are harmful in youth but can be tolerated in age. In summer one should partake of cold food and little of vegetables, in winter the opposite. Certain foodstuffs are especially harmful, and it is wise to neglect them, for example, large fish, cheese, and meat which are old and are preserved in salt. Sour fruit is not to be eaten, unripe fruits act upon the body like a sharp knife. . . . Bathing should be indulged in once every seven days. A person should sleep eight hours. During the day one should not sleep. Disease will not attack him who lives moderately. Among a thousand persons, only one dies a natural death; the rest succumb early in life owing to ignorant or irregular behavior.

Maimonides closed his dissertation in the following words: "I assure the person who will follow my precepts that he will not suffer bodily pain and that he will not require the services of a physician. He will retain his powers and faculties all through a long life, and at extreme age, will die a natural death. These regulations are always valid. They, however, who since birth have suffered from a bodily ailment or who in youth have accustomed themselves to evil practices, will do well to read the *Book of Remedies*, which I am now preparing."

Before I proceed further, I will enumerate the medical writings of Rabbi Moses ben Maimon, and

then discuss the various topics with which the writings deal. I am indebted to A. Friedenwald for the following exhaustive list of Rambam's contributions to medicine:

1. *Medical Aphorisms*, translated into Hebrew by Nathan Hamati. National Library, Paris.
2. *Abridgement of the Sixteen Books of Galen*, an Arabic work, quoted by Osaiba.
3. *Treatise on Hemorrhoids and Their Treatment*. National Library, Paris.
4. *Consultation on Snuffing in the Nose and Throat*.
5. *Treatise on Poisons and Antidotes*, translated by Ibn Tibbon. Paris.
6. *Treatise on Coitus*. Hebrew translation in Paris.
7. *Asthma*. Hebrew translation in National Library, Paris.
8. *Commentary on the Aphorisms of Hippocrates*.
9. *Of the Regimen of Health*. National Library, Paris.
10. *Hebrew translation of Ebn Sena*: Manuscript in Library of Dominicans at Bologna.
11. *Explanation of Drugs*, an Arabian pharmacopeia, quoted by Osaiba.
12. *Medical Consultations*, Hebrew manuscript, National Library, Paris.
13. *Modes of Curing Those Bitten by Venomous Animals, or Who Have Been Poisoned*.
14. *Treatise on the Cause of Disease*. Bodleian Library.
15. *Sefer Refuoth*.
16. *Sefer Ha Murza*.
17. *Abridgement of Works of Ebn Sena*.
18. *Treatise on Gout*. Arabian Escorial Library.

Hygiene was the favorite theme for discourse with Maimonides, especially dietetic hygiene. He was one of those who strongly believed in the avoidance of disease rather than in the cure of it. In his *Guide to the Perplexed*, which is not a medical work, he states that the variety of food taken by an individual should not depend upon his taste or caprice, but upon certain dietetic principles, whose aim it is to enhance the health and usefulness of the body. One should not accustom oneself to foods that tickle the palate, but should always keep in mind the desire of prolonging life and increasing health; and he should, therefore, partake only of wholesome food, no matter whether sweet or bitter. Exercise, he asserted, has in certain cases a decidedly beneficial effect. They who only follow sinful inclinations lower themselves to the form of brutes. "For those gifts of intelligence and judgment with which he—the human being—has been endowed for the purpose of acquiring perfection, but which he has failed to apply to their proper aim, are used by him toward wicked and mischievous ends; he begets evil things as though he merely resembled man or simulated his outward appearance."

There was at that time a certain class of ultra-religious Jews who thought it sinful to consult a physician. Disease, they argued, was a manifestation of the anger of the Lord, and in order to become cured it was necessary to fast and pray and make amends, but not to use medicinal herbs or other therapeutic remedies. The use of these, in their opinion, smacked too much of insubordination to the Divine power. Maimonides, on the contrary, strongly urged upon the community the benefits to be derived from medicine: "A person should not reside in a neighborhood where a physician does not dwell," was one of his recommendations. Among the absolute requirements of a municipality were the physician, the surgeon, and the bath house. In his introduction to the *Mishnah Commentary*, Maimonides quotes Ben Sirah thus: "The

Lord has planted medicinal herbs on the face of the earth, and the sensible man will not neglect them." He was especially particular to point out the biblical law that the physician shall be used in time of illness.² "Like unto a murderer," he wrote, "is the physician who refuses to tender his assistance in time of necessity, or who practises without due study of the ailment which he is treating."

Maimonides opposed secret, magical, or mysterious remedies. "You must beware," he wrote in the chapter On the Names of God, "of sharing the error of those who write amulets. Whatever you hear of them or read in their works, especially in reference to the [magic] names [of God] which they form by combination, is utterly senseless; they call these constructions holy names, and believe that their pronunciation demands sanctification and purification, and that by using them they are enabled to work miracles. Rational persons ought not to listen to such men nor in any way believe their assertions." In another chapter he pleads strongly for progressive scientific and philosophical investigations: "It was not the object of our prophets and our sages to close the gates of investigation entirely by these utterances,³ and to prevent the mind from comprehending what is within its reach as is imagined by simple and idle people, whom it suits better to put forth their ignorance and incapacity as wisdom and perfection, and to regard the wisdom and distinction of others as irreligion and imperfection, thus taking darkness for light and light for darkness."

It has been said that Rambam was the most rational physician of the Middle Ages. As Muenz states, his desire was to give clear reason precedence over vague mysticism. "The eyes," wrote Maimonides, "look forward not backward." He never prescribed a remedy which he had not himself tested before or which had no good authority for its use. He was an enemy of complicated, odious medications, and in his *System of Treatment*, he recommended only simple, logical methods. "In minor ailments," he wrote, "Nature cures the body without the need of medicinal remedies, if the patient only follows certain dietetic regulations. Where, however, the services of a physician are required, he should see to it that he aids Nature in her beneficial course. Most of the doctors err in their treatment. In endeavoring to assist Nature, they weaken the body with their prescriptions."

Perhaps the most important medical work of Maimonides was his abbreviated edition and translation of Galen. He systematized the writings of the Pergamite, and commented on those chapters which he thought worthy of special note. He did not, however, feel himself bound to agree with Galen in every respect. On the contrary, he was not at all loth to point out the errors and misstatements that abound in the writings of the "Prince of Doctors."

The *Sefer Refuoth*, or Book of Remedies, must needs be reckoned his most widely known, if not

²*Ecclesiasticus*, xxxviii, 1 to 15.

³"Neither make thyself overwise; why shouldst thou destroy thyself?" *Ecclesiastes*, vii, 16.

"It is not good to eat much honey (learning)." *Proverbs*, xxv, 27. "Do not inquire into things which are too difficult for thee: do not search what is hidden from thee; study what thou art allowed to study, and do not occupy thyself with mysteries." *Chagigah*, 13a, cited from *Book of Ben Sirah*, iii, 18.

most important contribution to medicine. Steinschneider has examined this book of Maimonides, and has written somewhat extensively about it. He states that Rambam based his aphorisms on some thirty writings of Galen, and he mentions the physicians whom Rambam cites as authorities.

Maimonides relates in this book the case of a woman who suffered from stomach disease. All the remedies that had been suggested to her she had tried, but they had proved of no avail. "I prescribed," he wrote without any intent to boast, "for the patient that which, no sooner had she taken it, than she became stronger and her appetite returned." In another place he relates the medical history of a young man who suffered from a disease of the brain membranes; "with the help of God" he was able to cure him.

There is a legend among the vulgar to the following effect: In a certain town there lived a young man who was suffering from excruciating pain in his cranium. The physician who was called, opened the skull, and noticed that a large worm was lodged in the brain. The doctor was in a great quandary. To extract the worm forcibly meant certain death to the patient, and to let the parasite be, would also prove fatal. Having heard that Maimonides was in the town on a short visit, the physician called the famous sage into consultation: "Take a cabbage leaf and place it near the worm," said Rambam. This was done and the worm, attracted by this bait, wriggled out, and the patient was thus cured.

The appointment of Maimonides to the position of chief physician to the king carried in its wake the envy and enmity of the other court doctors, astrologers, and magicians. There is a story that this jealousy culminated in a conspiracy to assassinate the great and learned Hebrew. The Arabian physicians requested Saladin to judge that doctor the greatest, who should be able to take a dose of poison and then so treat himself that he would not die. They so arranged it that Maimonides was the first to take the poison. Saladin, hesitating somewhat, gave his consent to the ordeal. On the appointed day, Maimonides, having previously taken an antidote to the poison, swallowed down the deadly draught, which had been cheated of its effects, and having survived the test, he was forced to witness his opponents partaking of the poisonous beverage and promptly succumbing to its deadly action.

Maimonides was always courageous. His good faith, his knowledge, and his wisdom stood him in good stead, and he was able to withstand the machinations of his enemies. When his daughter and beloved scholar died, he almost lost hope, and grieved so profoundly that he became desperately ill. In a letter which he wrote to his son Abraham, who was then in Spain, we see the anguish and despair of the great sage: "My son, the great labors of studying and writing and the immense responsibilities of my position in court, as well as the cares of the family, have worn me out so that I am now on the bed of disease. My enemies are alive and mighty, the number of my haters is great, and the death of your sister and my beloved pupil has increased my sorrow a hundredfold."

In 1193, Saladin the Great died, and the sun of

the fortunes of Maimonides became somewhat obscured. However, with the ascent of Sultan Almalik Alafdal to the throne (1198), the horizon cleared and Rambam again was reclothed in the great dignities and honors that were his before.

This sultan was a sickly prince, whom dissipation and debauchery had weakened both in body and spirit. Maimonides had indeed here a royal patient suffering from various real and imaginary, corporal and spiritual ailments. Nevertheless, the physician did not permit that the royal station of his patient should in any way interfere with his method of treatment. He was strict, and endeavored to cure the soul of the prince as well as the body. He concluded one of the letters that he wrote to the monarch, in these words: "May God in His mercy increase the number of the days of my lord, and strengthen his health, and grant him happiness of soul *here* and *there* according to the sincere prayers of his servant, Moses ben Maimon."

The sultan suffered from asthma, and Maimonides made a special study of this disease, which he later gave to the world in a *Treatise on Asthma*. He described the symptoms of this ailment, recommended methods of treatment, and related various anecdotes of the practices of the Arabian physicians in Morocco. The work consists of thirteen sections, divided into paragraphs.

At about this time, the Mesir Alfadhel requested Maimonides to write a discourse on poisons and their treatment. The cause for this request was the prevalence of disease in Egypt induced by the bites of animals, especially snakes. Maimonides in his introduction to this essay pretended to no originality, but stated that he had compiled all that was known in his time about the treatment of poisoning and that he had endeavored to present this to his reader in a concise and succinct form. The book consists of two divisions. The first is divided into four sections and deals with the treatment of the bites of animals. The second division, consisting of six chapters, treats of the manner of antidotal administration for internal poisons.

Some of his recommendations have borne the test of time: The wound induced by the bite of a poisonous animal should be sucked dry by the lips, should be kept open, and alcohol and oil should be applied. Emetics should be promptly administered. He suggested various applications to the wound, among which were common salt, onions, asafoetida, etc. For internal poisoning he advised the use of mandrake, bezoar, precious stones, various aromatic principles and especially theriaca, which in all times was believed to possess the property of combating the effects of the bites of venomous animals.

He described the symptoms of hydrophobia and argued strongly that the bite of a mad dog was the one to be feared, whereas that of a healthy dog was of minor importance. He enumerated several histories of patients bitten by dogs, and reported their symptoms and the treatment pursued.

Another treatise was dedicated to the Sultan El Melik of Hamat, who was a very weak and impotent prince; the work is entitled *On Coitus*. Maimonides's fame was so great that foreign monarchs requested his advice and followed his prescriptions. The original Arabic version of this book is in

Munich and in Oxford. A few copies of the Hebrew translation are also extant, one in Vienna and another at Parma.

In the *Causes of Disease* he enumerated etiological factors of various illnesses and logically correlated the cause and effect of disturbances of health. In other works he discussed the etiology, symptoms, and treatment of hemorrhoids and of gout, always endeavoring to suggest to suffering humanity only those remedies which seemed to him efficacious, and avoiding, as far as possible, quack, pseudopharmaceutical medications.

The fame of Rabbi Moses ben Maimon was very great during his lifetime, and after death, all nations united in praising him. He has been called the "Eagle of Doctors," "*lumen captivitatis*" and "*Moses Aegyptius*." All his successors had naught but praise for him after his death. The Arabic poet and cadi Al Said ibn Surat al Mulk sang his praise as a physician in ecstatic verse:

Galen's art heals only the body,
But Ibn Amram's (Maimonides's) the body and the soul.
With his wisdom he could heal the sickness of ignorance.
If the moon would submit to his art,
He would deliver her of her spots at the time of full moon.
Cure her of her periodic defects,
And at the time of her conjunction save her from waning.

On the thirteenth day of December, 1204, in the sixty-ninth year of his life, Ibn Amram Moses ben Maimon died in Fostat, where both Jews and Mohamedans observed public mourning for three days. His body was taken to Tiberias for interment and his tomb became a place for pilgrimage.

Both Hebrews and Arabians have a common saying: *Mimoshe we' ad Moshe lo kom k'Moshe*, "From Moses the Lawgiver until Moses ben Maimon, there was none like Moses."

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115 SECOND STREET.

FUNCTIONAL NERVOUS CONDITIONS.*

Practical Points in Treatment.

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There is probably no class of cases so undesirable to the average practitioner of medicine as those of the so called functional nervous group, comprising the conditions known as neurasthenia, psychasthenia, and hysteria, all of which are intimately related and overlapping. Properly treated, no class of patients offers such gratifying results; they are usual-

ly most loyal and appreciative; but, unfortunately, it must be admitted that no class of patients suffers the negligence and maltreatment that these people do.

The average trained medical mind is ever on the alert to find the pathological factor which may account for the patient's symptoms, both subjective and objective; but in examining the functional case, as a rule the physical evidence is misleading. These patients are frequently healthy in appearance, and usually there is no objective evidence of trouble.

The psychological phase of medicine has only recently come into its own, and a better understanding of some of its phenomena on the part of medical men will make possible a more intelligent treatment of this group of patients. I will not attempt to tabulate the innumerable causes of functional nervous conditions, but will mention at the outset that there is often a physical basis, to be determined only by painstaking examination, which is always essential before inaugurating a successful campaign of treatment. One must be cautious against overenthusiastic tendency to extremes, and not endeavor to interpret all symptoms as either psychical or physical. Psychic conditions frequently exist for a time alone, but physical disorders are frequently associated with varying degrees of psychical disturbance, which may be so dominant as to mask the organic element; against this condition one must ever be on guard.

One of the first requisites, in undertaking treatment of a functional nervous patient, is to listen to every detail of the patient's story, as he may wish to tell it. Allow him to relate every symptom and express his own ideas, if he so desires. Then question him carefully in the general method of obtaining a case history; and finally, make a most elaborate and thorough examination, not only for personal satisfaction, but as an essential part of the treatment, for the patient undoubtedly has been examined many times before, and notes with keenness every step of the entire procedure. A careful examination instills confidence, and when finished and in full possession of all the data, you are in a position to speak authoritatively, and to meet every argument and question. This procedure frequently must be continued into a series of sessions before a familiarity with the patient and his condition can be obtained. Venture no opinion until in full possession of all the facts and data (blood and urine analyses, etc.), and then demand that the patient listen to your interpretation of the condition.

By this time you will, as a rule, have your patient on the road to recovery simply by having obtained his *confidence and faith*. Explain to him every detail as to the wisdom and logic of the plan of treatment which you outline; explain in a simple academic manner the causes of the various symptoms of which he complains. In this age people are well informed—often too well enlightened for their own good—and they insist on knowing the whys and wherefors. It is essential that they should know, as an intelligent understanding of their symptoms, which are mostly subjective, eliminates the element of fear and apprehension which has given rise to much mental suffering.

A large group of the functional nervous cases are dependent upon some disturbance of metabolism,

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either as a primary or secondary factor. Disturbances of the internal secretory glands, and more often gastrointestinal disturbances, figure largely in this class. Intestinal fermentation and putrefaction are productive of autointoxication which produces a well known and very large group of the so called autotoxic neurasthenias. Dietetic errors, intake of excessive amounts of proteid food, defective elimination due to sedentary habits, are productive of the so called lithemic neurasthenic states.

Saturation with the toxins of defective metabolism gives rise to the most vicious irritation of the nervous system. Certain toxins appear to have a selective action in certain individuals for special cells of the nervous system, giving rise in one person to irritant effects of some one or more groups of nerves, displaying symptoms of a simple neuritis, while in another arthritic symptoms will predominate, or, most frequently, the entire nervous system is subjected to the irritant process, which affects the aggregate cellular structure nutritionally. Such nutritional derangement is productive of dynamic disturbance, and the energizing power of the nervous system is diminished. The brain and cord represent the dynamo which runs the psychical and physical mechanisms. Functional disturbances of body organs result, and these in turn are productive of metabolic disturbances, giving rise again to an increase of toxins; hence, the so called *vicious cycle*. Subjective symptoms dominate. Treatment of disturbances of metabolism alone does not suffice; nor does treatment of the nervous system alone effect results. The condition must be attacked from both ends. Each patient is an entity, and offers different problems from all other patients. The neurologist who, in treating these patients, sees only the nervous system, is in error. *A fault too frequent with all specialism is observation limited to the functions of the special organs embraced by the particular specialty of the examiner.* The nervous system, the most important entity of the entire organism, is all too frequently neglected in routine examination. The functions of every organ in the body are dependent upon it, and it, in turn, is secondarily subjected to derangements by disturbances of those organs; therefore, the successful examiner must equip himself with diagnostic acumen, and interpret each case by a thorough examination of the entire body.

In the treatment of the types under discussion, it is usually desirable, and in most cases essential, that the patient be taken out of the home environment. Personally, I do not approve of sanatorium treatment for the functionally nervous patient. Institutional treatment should be insisted upon for mental cases, and is desirable in other organic diseases of the nervous system or elsewhere, but for the average functional cases, in my opinion it is adding fuel to the fire to send them to sanatoria. These patients are given to morbid introspection and depression, and any atmosphere which tends to further this is bad. Contact with other persons in poor health, with incident opportunities for observation of and conversational indulgences with such people, offer ideal conditions for the further development of that which we are endeavoring to eradicate. *Sanatoria are hotbeds of bad suggestion.* These patients should be brought in contact with normal, healthy

people *only*, and live in an environment of health.

For the foregoing reasons, I insist at the outset in transplanting these patients, during treatment, from the atmosphere in which their troubles developed, to a new and healthy one, even though it be only a block away from the patient's home. My personal plan is as follows: I usually select a hotel or boarding house, according to the patient's circumstances, in the vicinity of my office, where I may be assured of the patient's comfort, and where, without interference of sympathizing friends and relatives (which is understood at the outset) I can dominate the situation. As a rule, the cooperation of the patient is easily obtained. A most essential adjunct in the treatment is the service of an intelligent, tactful nurse companion. Such aids are, unfortunately, all too rare. The average hospital nurse is worse than useless; male nurses I rarely employ for such work. Fortunately, there do exist some trained nurses who, after a little experience, qualify successfully in this special field. Such a nurse is to serve as the physician's proxy in the management of the patient. I never allow my nurses to wear uniforms while with the patient, or to be spoken of before the patient as "nurse"; in fact, everything is done to eliminate the thought of sickness. As to the details of the routine followed in treatment, such as drugs, hydrotherapy, electrotherapy, exercise, recreation, and rest, I shall not take time to specify, although all are of extremely great importance.

The psychoneuroses, embracing the psychasthenic and hysterical states, are treated in a manner similar to that briefly outlined above, but it is in connection with these conditions, especially the hysterical states, that I wish to dwell upon some of the more modern conceptions of psychological treatment. Here, again, the successful cure depends upon ascertaining the etiological factors in the given case, but, differing from the other forms of therapy, the determination or elucidation of the cause, by a process of psychoanalysis, is the thing that effects the cure. This method, for which we are indebted to Professor Sigmund Freud, of Vienna, was first evolved by him and his coworker, Breuer, in 1895 (*Studien über Hysterie*). However, it received but little notice as a direct method of therapy until very recently, and now, like everything which makes a sudden appeal, it is undoubtedly being abused in its application by extreme enthusiasts and those who are not qualified to know how to use it, and, consequently, fail in its proper application.

The psychoanalytic method, in brief, assumes that the basis of every psychoneurosis depends upon a psychic factor which is the determinant, and it is in the effort to ascertain what this may be that the analysis is undertaken. To subject the neurasthenic and average psychasthenic patient to this ordeal, which I shall presently describe, is absurd folly; yet this is all too frequently done, especially by overenthusiasts. In my opinion, it is a method of value in selected cases, especially those of the hysterical type. There is little or no difficulty for the trained and tactful neurologist, or I may say, general physician, in undermining the etiological factors in the psychic realm of the neurasthenic or average psychasthenic patient, for these are the patients who are conscious of their mental complexes, but often refrain from relating them to others,

realizing a lack of appreciation or understanding on the part of the hearer, or through shame or fear hesitate to tell those things which are most formidable sources of anxiety to them. But once such a patient realizes that a competent and interested physician is at his disposal, his innermost thoughts and repressed complexes are poured out from his soul's depths. He is only too anxious to tell them to some one, but the restraint and repression exist until that *some one* has awakened in him a feeling of confidence and faith.

The development of faith is an essential factor, and a most potent one in its influence on the psychic state of all individuals, sick or well. The physician who obtains the confidence and faith of his patient can perform miracles. The privilege of the patient to relate his innermost thoughts to one in whom he has faith effects the cure by so called *psychic catharsis*. The confessional of the church obtains this result in much the same way. It matters not to what the individual pins his faith, be it a religious cult, a god, a relic, a fetish, or what not, he may be cured, provided his troubles are psychic.

To return now to the procedure of psychoanalysis, it will be essential to narrate briefly Freud's interpretation of the etiological factors essential to the development of the psychic states existent in the group of cases amenable to treatment by this method. The active etiological factors are always those experiences which produce a painful affect of fear, anxiety, or shame. These are spoken of as psychic traumata. Whether an experience becomes a psychic trauma naturally depends upon the individual, some being more susceptible than others. In the traumatic hysterias, for instance, the physical injury may be slight and yet manifest itself by profound physical disability. In these cases, the etiological factor is not the bodily trauma, but the affect of the fright, which is the psychic trauma. Such cases are common, and are very frequently encountered in the courts, where damages are claimed for disability from accident and injury. Cases of this type are justly entitled to their claims, within limitations, although frequently denied a just verdict because of the lack of convincing objective evidence to back up their claims of injury sustained. Here I am digressing upon a very interesting and important subject, but one foreign to this paper. To resume, in a case of hysteria, for instance, one trauma is not always the exciting factor, but frequently many, which may seem individually insignificant, but when grouped, act much the same as one of severe type. Freud further asserts that the "causal connection between the provoking psychic trauma and the hysterical phenomena does not, perhaps, resemble the trauma, which as the *agent provocateur* would call forth the symptom which would become independent and continue to exist." "The psychic trauma or the memory of the same acts like a foreign body, which even long after its penetration must continue to influence like a new causative factor."

The hysterical person suffers mainly from memories, but many of these have long been forgotten. The loss, however, of the affect of these memories depends upon the manner in which the person reacted to the experience which originated them. To quote Freud: "By reaction we understand a whole

series of voluntary or involuntary reflexes, from crying to an act of revenge, through which, according to experience, affects are discharged. If the success of the reaction is of sufficient strength, it results in the disappearance of a great part of the affect. Language attests this fact of daily observation in such expressions as: To give vent to one's feelings. . . . To be relieved by weeping. . . . Hit back when struck," etc.

If the reaction is suppressed, the affect remains united with the memory. An insult retaliated, be it only in words, is differently recalled than one that had to be taken in silence. To obtain a reaction is, therefore, what is desired and this may be done voluntarily by the patient successfully in many ways, one of which is by talking the matter over, giving vent to the irritation of the experience in language, as in confession, which serves as a satisfactory reflex in many cases. However, many of these experiences are of so unpleasant and painful a nature that they are not reacted to, but repressed, which is the tendency of most individuals. Effort is made to forget that which is unpleasant, and so the thoughts of the experience are repressed without suitable reaction. The patient so intentionally inhibits and represses the memory of the psychic trauma from his conscious memory. These repressed psychic irritants are frequently reflected somatically, and are productive of many of the physical symptoms objectively evident in hysteria, e. g., contractures, tics, paralyses (blindness, deafness, aphonia, etc.).

By hypnosis, a short cut to a cure may be obtained by suggesting away from the patient the annoying symptoms, but it does not remove the etiological basis of the trouble. This is arrived at by analyzing the psychic state of the person and bringing to the surface from the cellar of the subconscious mind the memories of the original experiences; in other words, making the patient live through the experience again, and so producing a reaction by having the patient relate the details as recalled, thus bringing the memory so long buried to the surface and effecting an *abreaction*.

In some cases, to overcome inhibitory tendencies, or where conscious memory of the experience is lacking, the patient, when hypnotized, will recall the entire experience and relate it in detail. As a rule, however, the conversational method of free association, as Freud calls it, will suffice. Bringing the repressed complexes to the surface, in the content of the conscious mind, thus eliminating the irritant foreign body, is what effects the cure, by what is called *psychic catharsis*.

Jung, of Zurich, has devised a method which I will briefly mention, which may be resorted to in those cases where the method of free association fails to elucidate satisfactorily. This is known as the word association method, the awakening of thoughts by the use of stimulus words. In this the cooperation of the patient is essential. He must repeat at once the word or thought occurring to him in association with the word suggested. In this way, after a painstaking test, many valuable data may be obtained in awakening latent complexes.

This paper has already assumed a form too voluminous for me more than to mention, in closing,

a matter always to be reckoned with in treating functional nervous conditions, especially the hysterical states; I refer to the sexual instincts. Sexuality is well known as a dominant factor in normal, and more so in abnormal psychological states. Freud asserts that all psychoneurotic illnesses develop on a basis of some abnormality of the sexual life. This may or may not be an exaggeration, but it certainly is a factor to be dealt with, especially in making a satisfactory psychoanalysis, and the relative frequency with which one undermines a sexual basis as a foundation of hysterical states is more than convincing that it is a dominant factor to which too little attention has been given. Fortunately, prudery and false modesty are daily becoming less and less, and we may now mention and discuss with our patients matters of sexual nature which formerly would have been considered highly improper.

One may well imagine the difficulty arising at times in acquiring a knowledge of the sexual life of a given patient, especially one of the female sex; but by the various methods at hand, and one more, of which I will merely make mention, very satisfactory data can be obtained.

The perversions and inversions may be satisfactorily explained by the Freudian interpretations of the sexual theory, and those afflicted may be cured, if they desire. However, I will not at this time dwell on this subject. The psychic traumata are so frequently of a sexual nature that any analysis is incomplete which does not involve a thorough consideration of the patient's sexual life.

I referred above to another method of obtaining valuable data; this is the analysis of dreams. In brief, dreams represent one of two things, either the experience of something which the person fears or dreads, or that which is desired or wished for. Most dreams represent the fulfilment of a wish. When the censorship of the conscious mind is eliminated, as in sleep, the thoughts occurring are frequently those of such a nature as the patient would not voluntarily entertain or allow to enter the mind. Dreams very frequently appear superficially to be absurd, yet upon analysis and interpretation they often symbolically lay bare many underlying motives. Here, again, the patient's co-operation is necessary, and if the dreams are correctly related the evidence is most enlightening and important.

112 WEST EIGHTY-FIFTH STREET.

SEWAGE POLLUTION OF THE GREAT LAKES.

By ALLAN J. McLAUGHLIN, M. D.,
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INEVITABILITY OF POLLUTION.

The Great Lakes with their very populous drainage basin cannot escape pollution even if the sewage of the cities were disposed of by the most approved methods. The same is true of their connecting rivers. After heavy rains, thaws, and floods, much pollution reaches these waters inde-

pendent of the sewage which is discharged from city sewers.

This pollution of the lakes is greatest near shore, along the water front of great cities, and at the mouths of large streams. This polluted zone has no fixed boundaries. It may extend one half mile from shore, and it may extend five miles or more. This variability in the boundaries of the polluted zone is due to the irregularity of currents.

LAKE CURRENTS.

Direction and velocity of lake currents may be said to depend entirely upon the wind. The frictional action of wind upon bodies of water causes a surface current in the direction of or "with" the wind, and a piling up of the water on the shore directly opposed to the direction of the current and lowering of the water at the opposite end. There is also alteration of temperature by mixture and by importation of waters of different temperatures.

The direct effects of wind action are the most important from a sanitary standpoint. The first because of its direct carriage of polluted water for considerable distances. The second operates in two ways: 1. The rapid lowering of water level carries the polluted water in the low end of the lake out of harbors into the lake; 2, after the piling up of water at the high end of the lake and without a change of wind, pollution is carried out of harbors by a "backwash" or undertow in spite of the persistence of a surface current toward the shore. The effect of alterations of temperature, probably has less sanitary significance.

When an unusual disturbance of a large body of water occurs due to strong winds, the immediate results are as indicated above; a surface current in the direction of the wind, a piling up of the water on the lee shore, and a fall of the water on the weather shore. The return to stable equilibrium is effected by a series of rhythmic oscillations about a central nodal line. These rockings or oscillations are of decreasing amplitude until stable equilibrium is established, and in a comparatively long and narrow lake, with the wind in the direction of the long axis of the lake, resemble the motion of a child's seesaw or teeter. The Great Lakes because of rains, thaws, and floods on the watersheds are polluted near shore independent of the direct sewage discharge of the cities on their shores.

The boundaries of this shore pollution are variable depending upon the very variable winds and currents which prevail in the Great Lakes. For the same reasons the great connecting rivers are polluted, not only by the sewage of cities, but by the washings of the entire country side during storm and flood. This latter pollution alone is sufficient to make the water of these rivers unfit for drinking purposes without purification many days in the year.

REMEDIES FOR CORRECTION OF SEWAGE POLLUTED WATER SUPPLIES.

This brings us to consider what remedies are best adapted to the correction of our sewage polluted surface supplies. Purification of water supplies takes precedence over sewage purification in preventing water borne diseases for two reasons: 1. It is more effective; and, 2, it is cheaper.

As pointed out above the purification of city sewage, even carried to the extreme limit of feasibility, does not insure purity in either lake or river water at all times. It is therefore ineffective as a substitute for water purification. As a general problem it is cheaper to purify water than sewage.

Inasmuch as sufficient pollution is inevitable to render necessary purification of water supplies, even if sewage purification were carried out in our large cities, it seems pertinent to ask how much pollution may safely be permitted, in order to utilize the economic advantage of cheap sewage disposal. This brings us to the question of sewage disposal by dilution.

SEWAGE DISPOSAL BY DILUTION.

Two results may be attained by treatment of sewage: 1. The putrescible material may be changed to more or less stable constituents so that the effluent is stable or nonputrescible, thus obviating nuisance; 2, the bacterial content may be reduced and the pathogenic bacteria eliminated, so that the effluent will not be a factor in the transmission of disease. Sometimes sewage purification methods effect both these results; sometimes necessity demands only the avoidance of nuisance.

At other times, where there is ample dilution available, no nuisance can result, and the only necessary object is to secure an effluent which is not dangerous to health as a carrier of pathogenic bacteria.

Contact beds, sprinkling filters, and many other more or less complicated and expensive processes were devised primarily to avoid nuisance by charring or oxidizing the putrescible material in sewage, so that the effluent could be discharged into some watercourse without causing an offense to the senses. Various kinds of septic tanks were devised to effect the same result in another way, viz., by making use of the anaerobic bacteria for getting rid of at least a portion of the solid matter by digestion—and carrying out the putrefactive changes in the tank, hoping to get a stable effluent. The amount of sludge digestion in septic tanks and the character of their effluents have been a disappointment, but these methods, especially the oxidation processes effected by sprinkling filters, are useful and often necessary to prepare sewage effluents for discharge into streams with small flow to avoid nuisance and preserve fish life. From the standpoint of transmission of disease it must be remembered that these processes do not render the effluent safe, and although the putrescible material is reduced or removed the bacterial count remains high.

In considering sewage purification in cities on the Great Lakes or their connecting rivers, the question of preventing nuisance is not difficult of solution. It is estimated that a stream flow of three to seven cubic feet a second will care for the sewage of 1,000 persons without nuisance, or that a dilution of fifteen to twenty times the quantity of sewage discharged will be sufficient to obviate nuisance.

In view of the enormous quantity of water available for dilution, the only object to be obtained in the lake cities by sewage disposal plants is to obtain an effluent which does not endanger the public health by transmission of pathogenic organisms.

Disposal of sewage by dilution is the cheapest known means, and where this method can be employed without detriment to the water supplies or danger to the health of other communities the exacting of more complicated and expensive methods is scarcely justifiable. In cities on the seaboard disposal by dilution has been employed and is justly considered to be an asset of great value.

This is an age of conservation and there is a natural tendency to conserve our natural resources. By utilizing dilution in sewage disposal, we take advantage of a natural resource and save millions of dollars. When this may be done without detriment to the public we are justified in taking advantage of the opportunity.

How far should treatment of sewage be carried as an adjunct to the necessary water purification? No rule can be formulated to cover all places. Each problem must be considered separately and a balance struck between these two great agencies in the protection of the public health.

It becomes an economic question. The combination which will protect the public health at the least cost should be the one selected. Sewage disposal by dilution should be permitted in the Great Lakes for economic reasons where this may be done without danger to the water supplies of other communities, or where such methods do not place an unreasonable burden or excessive cost upon the water purification plants of those communities.

The problem of sewage pollution of interstate waters with special reference to the spread of typhoid fever has been studied intensively by the writer for the past two years. During that time his investigations have covered the entire drainage area of the Great Lakes within the United States from Duluth, Minn., to Ogdensburg, N. Y. As a result of this study certain fundamental facts seem to stand out prominently in the discussion of this problem.

1. The primary necessity from a sanitary standpoint is safe water supplies, 365 days in the year without waiting for solution of sewage disposal problems.

2. In spite of the most elaborate methods of sewage purification, pollution of these waterways will take place at certain times, so that sewage purification cannot be considered a substitute for the inevitable purification of water.

3. Because of winds and currents, floods and thaws, the boundaries of the zone of shore pollution are constantly changing. The only way to secure safe water every day in the year, without unjustifiable expense, is by some method of water purification.

4. Sewage purification may often be an aid and sometimes a necessity to improve the quality of the raw water, but will rarely, if ever, make one of these surface supplies absolutely safe. For this reason it must be considered as secondary to water purification in preventing water borne diseases.

5. The use of streams for sewage disposal within permissible bounds is an economic advantage and absolute prohibition of this use is unjustifiable.

6. Such use of streams is sound in principle and safe in practice when proper restrictive control is exercised.

7. The permissible limit of pollution of each river, lake, or waterway can only be fixed by careful study of the waterway of the uses which must be made of it and to which it is best adapted.

8. That although prevention of all pollution is impossible, control of pollution is feasible and imperatively necessary. The absolute prohibition of discharge of sewage into these waters is scarcely justifiable and the legality of such legislation would be extremely doubtful.

9. The discharge of sewage should be under control and permitted, when possible for economic reasons, within certain limits. The permissible limit of such reasonable use should be fixed by official standards of the raw water after a careful sanitary survey and consideration of the purposes for which the waterway is necessary or available.

10. These official standards would have to be made for each problem separately and independently, it being manifestly impossible to attempt to fix any general standards of raw water to cover all cases.

The acceptance of these basic facts will tend to prevent unjustifiable generalization in a problem where each city is a law unto itself. By allowing a reasonable use of these interstate waters in the reception of sewage or sewage effluents subject to such restrictions coupled with water purification, which will amply protect the public health, the more intensive processes of sewage purification may in many cases be avoided. A city may thus be saved a very great expense which could be justified only on sentimental and not on practical grounds.

To attempt the impossible is not only to court certain failure, but further, such attempts make difficult any later efforts of a more conservative and practical nature.

TWENTY-FIFTH AND E STREETS, N. W.

THE COLORADO METHOD FOR THE EXAMINATION AND CARE OF PUBLIC SCHOOL CHILDREN.*

BY MARY ELIZABETH BATES, M. D.,
Denver,

President, Humane Education Society.

Following is the Colorado law. The provisions in italics are the only amendments, made by the Senate and concurred in by the House, to the bill as I wrote it and as it was introduced in the House by Hon. Alma V. Lafferty, the one woman member of the Assembly. Section 2 without its amendment, was included in a bill to collate the School Laws introduced in the previous Assembly, but failed of passage.

It is the duty of the State Bureau of Child and Animal Protection to promote the interests of all the children in the State, to secure the enactment and enforcement of legislation for their benefit, and to have especial care of the abused, neglected, dependent, delinquent, and defective children. For this reason it was made the especial duty of the

Bureau of Child and Animal Protection to enforce the Physical Examination (Bates) law, at the suggestion of its executive officer, the secretary, Mr. E. K. Whitehead who has long been particularly interested in what might be termed prophylactic child protection. The Bureau of Child and Animal Protection has endeavored to promote the physical welfare of the children coming under its especial care, but has been able to do so universally and more effectively since the passage of this law. The Bureau has brought several prosecutions for failure to conform to the statute but has not brought any such cases in the Juvenile Court of Denver.

The Denver Juvenile Court has a corps of special officers designated to look after the delinquent children of this city, but has never paid any attention to possible physical defectiveness as a cause of delinquency, nor has it made any attempt to remedy such defectiveness either by recourse to this law or in any other way.

AN ACT PROVIDING FOR THE EXAMINATION AND CARE OF CHILDREN IN THE PUBLIC SCHOOLS, AND MAKING AN APPROPRIATION IN CONNECTION THEREWITH.

Be it Enacted by the General Assembly of the State of Colorado:

Section 1. The State superintendent of Public Instruction shall prepare or cause to be prepared suitable test cards, blanks, record books, and other needful appliances and supplies to be used in testing the sight, hearing, and breathing of pupils in the public schools, and the necessary instructions for their use; and shall furnish the same free of expense to every public school in the State. The teacher or principal in every public school, or where there is no principal, the county superintendent, shall, during the first month of each school year, test the sight, hearing, and breathing of all pupils under his charge; *such examination to be made by observation without using drugs or instruments, and without coming in contact with said child;* and keep a record of such examinations according to the instructions furnished and make a written report of such examinations to the State superintendent of Public Instruction as he may require.¹

Section 2. Every teacher in the public schools shall report the mental, moral, and physical defectiveness of any child under his supervision, as soon as such defectiveness is apparent, to the principal or, where there is no principal, to the county superintendent. Such principal or county superintendent shall promptly notify the parents or guardian of each child found to be defective, of the child's defectiveness, and shall recommend to such parents or guardian that such child be thoroughly examined as soon as possible by a competent physician or surgeon with special reference to the eyes, ears, nose, throat, teeth, and spine.

If the parents or guardian of such child shall fail, neglect, or refuse to have such examination made and treatment begun within a reasonable time after such notice has been given, the said principal or superintendent shall notify the State Bureau of Child and Animal Protection of the facts; *Providing, however, that whenever it shall be made to appear to the said principal or superintendent, upon the written statement of the parent or guardian of said child, that such parent or guardian has not the necessary funds wherewith to pay the expenses of such examination and treatment, the said principal or superintendent, shall cause such examination and treatment to be made by the county physician of the district wherein said child resides; and it shall be the duty of such county physician to make such examination and treatment, and if he be unable to properly treat such child he shall forthwith report such fact to the county commissioners of the county with his recommendation.*

Section 3. The State auditor is hereby directed to draw his order for such sums and at such times as the State

*Read at a conference on Conservation of School Children, Lehigh University, South Bethlehem, Pa., April 4, 1912, under the auspices of the American Academy of Medicine.

¹Adapted from Dr. Frank Allport's Vermont law.

superintendent of Public Instruction may require to carry out the provisions of this act. The total expenses under this act shall not exceed one thousand (\$1,000) dollars in any biennial period ending November 30th.

Before the measure was introduced it had been endorsed without suggestion of change by the State superintendent of Public Instruction, Mrs. Katherine M. Cook; the superintendent of the Denver Public Schools, Dr. Charles E. Chadsey; the Executive Committee of the State Teachers' Association and the Association itself; the State Ophthalmological Society; the Democratic Women's Legislative Committee and the Colorado Federated Women's Clubs' Legislative Committee, but none of them had any part in its passage.

There was no real opposition in the legislature, but the bill happened to present a convenient excuse for filibustering tactics and the constant attention it required for safe conduct through every possible legislative procedure devolved upon Mrs. Laferty and myself. Governor Shafroth promptly signed it, and it went into effect in July, 1909.

The circular letter of instructions on the modus operandi of the law, the record blanks, tests, letters to parents, etc., were prepared by the then State superintendent of Public Instruction, Mrs. Katherine M. Cook, and myself, and they are still in use. Tests and blanks in use in other States and cities were consulted and adapted to our conditions and purposes. The text thereof is as follows, and the Colorado method is best comprehended by reading them in their entirety.

INSTRUCTIONS

ON THE LAW FOR THE EXAMINATION AND CARE OF PUBLIC SCHOOL CHILDREN.

[Circular Letter.]

The teachers will fill out the blanks in the Teachers' Record Cards as instructed, using the carbon paper to make two copies at the same time; the one marked "Principal or county superintendent" is to be sent to those officials, and the other marked "Teacher's Stub" is to be left in the book for subsequent reference, comparison, and summary.

Use a good, sharp pointed pencil with force enough to produce clear copies not easily erasable.

If it becomes necessary to rerecord a pupil during the same school year, affix the second stub to the stub of first record.

The teacher will place a * in red ink after the names of pupils whom she considers it desirable or necessary to refer for medical attention in accordance with the law, and indicate the reason therefore by a * opposite the number in the margin of the record card where defectiveness is indicated.

The principal or county superintendent will file the teachers' record cards when received with the Notice of Parents Book.

The record cards of pupils whose parents the principal or county superintendent notify are to be attached to the stub of the corresponding notice to parent or guardian, as directed thereon.

The principal or county superintendent will send the notices to parents or guardians in accordance with the law (Session Laws of 1909, page 400), and record same on the record card received from the teachers.

Should the principal or county superintendent require medical care for pupils not advised by the teacher or not require it of any so recommended, he will notify the teacher to that effect, with date of sending of notice. In lieu of information to the contrary the teacher will assume that notices have been sent when marked therefor on her record card, and will date the "reasonable time" allowed for the return of the physicians' report from the date of the sending of the record card to the principal or county superintendent.

The physicians' report is to be returned to the teacher. If within a reasonable time the physician's report is not received by the teacher or proves to be unsatisfactory; or where in lieu thereof the parent or guardian sends a written statement that he has not the necessary funds wherewith to pay the expenses of such examination and treatment; the teacher will send a *failure notice* (with such written statement if any) to the principal or county superintendent, recording same on the pupil's teacher's record card.

The principal or county superintendent will record the failure notice on pupil's record card and forward the notice to the State Bureau of Child and Animal Protection, State House, Denver.

If a written statement of inability to pay accompanies a failure notice, the principal or county superintendent will at once "cause such examination and treatment to be made by the county physician of the district wherein said child resides"; who if unable to treat such child shall forthwith report such fact to the county commissioners with his recommendation. If satisfactory results are not had within a reasonable time, the failure notice, written statement of inability to pay, statement of reference to county physician, etc., with other information germane to the case, is to be forwarded by the principal or county superintendent to the State Bureau of Child and Animal Protection.

What constitutes a "reasonable time" will be left to the judgment of the teacher, under the advice and direction of the principal or county superintendent. If, after taking all the circumstances into consideration, doubt exists, refer the matter to the Bureau of Child and Animal Protection, with full particulars.

Whatever unpleasant or difficult duty may arise in the enforcement of the law for the examination and care of school children, is laid by the law, not upon the teacher, the principal, the county superintendent or the State superintendent of public instruction, but upon the State Bureau of Child and Animal Protection.

Whenever the State Bureau of Child and Animal Protection receives a failure notice it will at once send its own notice to the parent or guardian requesting compliance with the law, and will, at the same time notify the teacher of that action.

In most cases a notice from the bureau will be sufficient to induce prompt obedience to the law. If, however, they still "fail, refuse, or neglect," the teacher will send a second failure notice, marked "No. 2," to the principal or county superintendent, who will forward it to the State Bureau of Child and Animal Protection at the State House, Denver. The date of the second notice is to be recorded also upon the record cards.

When the Bureau of Child and Animal Protection receives a failure notice accompanied by a written statement of inability to pay, etc., it will investigate and assist.

When the bureau receives a second failure notice it will send an officer who will first consult with the teacher, if possible with the principal or county superintendent, and acting under the direction of the bureau will take charge of the case.

In most communities there is at least one local volunteer officer of the Bureau of Child and Animal Protection, fully empowered to act, and to whom the teacher might be disposed to report cases, unless otherwise instructed. But in order to obtain accurate records and for other obvious reasons, teachers are instructed to report all cases in accordance with the directions herein prescribed.

Teachers will record the results of the law enforcement by the State Bureau of Child and Animal Protection upon the pupil's record card.

The teachers will fill out the teacher's summary blanks and mail to the county superintendent at the end of the fall term and at the end of the school year.

The county superintendents will fill out the county superintendent's summary blanks and mail to the State superintendent at the end of the fall term and at the end of the school year.

Record card books and all other supplies for the execution of the provisions of the State "For the Examination and Care of School Children," or any part of them are to be sent upon her demand to the State superintendent of Public Instruction.

Teacher should cross out words not needed and fill in blanks when occasion demands.

All unused blanks should be returned to County Superintendent's office.

INSTRUCTIONS

ON

SIGHT, HEARING, AND BREATHING TESTS.

In Accordance with Chapter 203, Pages 490-491, Sections 1, 2, and 3, Session Laws of 1909.

To Superintendents, Principals, and Teachers:

The examination should be made by the teacher under whose immediate observation the child is to be, and under the direction of the principal, or where there is no principal, of the county superintendent.

It is to be made during the first month's attendance of the child during each school year.

Every child must be examined.

The examination must be made privately and singly.

The record blanks must be filled out with the data obtained, and kept on file. The duplicate is to be sent to the county superintendent at the end of each school term and upon request of the State superintendent.

CHART No. I.

DISTANCE VISION CHART—LETTERS.

Sight—

Children already wearing glasses should be tested with such glasses properly adjusted; *i. e.*, frames straight, lenses on the same level and not touching the eyelashes. The head must be held straight, not tilted, and the eyes must look through the centres of the lenses.

The vision chart must be kept in this envelope when not in use, as familiarity with it leads to an acquaintance with its letters. When it becomes soiled and worn, apply for a new one. Do not cover it with glass.

Place the vision chart on the wall in good light, side light preferred, and on a level with the child's head.

Place the child at a distance of twenty feet from the chart and directly facing it.

Examine each eye separately. Hold a card in front of and close to one eye, while the other eye is being tested.

Press the card against the nose, but not against the covered eye, as pressure on the eye will induce an incorrect result.

Have the pupil begin at the top of the chart and read aloud down as far as he can; first with the right eye from right to left and then with the left eye from left to right.

The line marked 20 should be seen and read at a distance of twenty feet if the child has normal vision.

To record the acuteness of eyesight:

The number opposite each line of the vision chart shows the distance in feet at which those letters should be read by a normal eye. If the eye reads the letters (or with a mistake of only one or two letters) on the line marked 20, the vision is to be noted as 20/20, or normal; if the smallest letters which can be read are on the 30 foot line the vision will be noted as 20/30 (if vision is 20/30, parent need not be notified, if child is otherwise in good health), if on the 40 foot line, as 20/40; and so on.

If the child cannot see the letters on the 200 foot line, have him approach slowly until he can see them. If 15 feet is the greatest distance at which he can read them, the record will be 15/200; if 10 feet, 10/200; and so on.

To prevent memorizing, one letter at a time may be shown, and in irregular order, by covering the others with a piece of pasteboard having a hole cut in it, large enough to expose one letter.

CHART No. II.

DISTANCE ILLITERATE VISION CHART—FIGURES.

Use this chart in place of the "Distance Vision Chart—Letters" for children who do not know the letters, and in exactly the same way as directed for Chart No. I.

CHART No. III.

ASTIGMATISM CHART.

Test for astigmatism:

Use the astigmatism chart in the same way at the same distance. If all of the lines are seen as equally dark and heavy, the child has no apparent astigmatism.

If one or more of the lines are seen to be blacker and heavier than the others, the child has apparent astigmatism, and the record should show which line is the blackest by its number on the chart.

Whenever it is learned that the child has less than 20/20 vision in either eye, or can see unusually far; that the

lines on the astigmatism chart are not seen to be of even blackness; that the focusing power is markedly poor; that the child habitually tilts the head; that the eyes or eyelids are habitually red or inflamed, or styes have existed; that the eyes are crossed or have a strained appearance; that headaches of any kind, or pain in eyes or head, follow use of the eyes in reading, music reading, sewing, or other near work with the eyes; that train sick headaches or morning headaches in the back of the head are frequent; or that the letters blur or run together when reading; the teacher will refer the case to the principal or county superintendent, who will send a notice to the parent or guardian of the child, that the child's eyes need medical attention, as the law requires. Effectual medical attention, with properly fitted and properly worn glasses, will cure most of these conditions.

HEARING.

Ears:

All children should be examined. Children should be examined privately and singly.

Examine the ears separately and together.

Ascertain whether the child has earache, has pus or a foul odor proceeding from either ear; suffers from frequent "colds in the head"; is subject to a constant catarrhal discharge from the nose or throat; or has noises in the ear.

Seat the child, with both eyes closed, facing you, near one end of a quiet room with the windows closed, and begin the tests of the hearing at a measured distance of twenty-five feet. The test is to be made by having the pupil close one ear tightly with his finger, while you observe the ability of the child to repeat your moderate whispers, with equal emphasis, of numbers between twenty-one and ninety-nine, inclusive—avoiding numbers with ciphers. Avoid having a wall behind you to act as a sounding board.

Record the distance at which the child correctly repeats a series of three numbers, which gives his hearing distance for that ear, thus:

If he repeats the numbers correctly at twenty-five feet, his hearing is 25/25, or normal; if the child only repeats the numbers correctly at twenty feet, his hearing is 20/25; and so on.

Further tests for ears, thus found defective, can be made by observing the greatest distance at which each ear can hear the tick of an ordinary watch. The normal distance is at least three feet.

When the hearing of either ear is found to be defective, the teacher will refer the case to the principal or the county superintendent, who will at once notify the parent or guardian of the child, that the child's ears need medical attention, as the law requires.

BREATHING.

Ascertain whether the child is a constant or frequent mouth breather; has frequent attacks of tonsillitis or sore throat; has a flat or depressed chest; occluded nostrils or difficulty in breathing on exertion.

To ascertain if the nostrils are occluded, have the child press his fingers against one side of his nose and breathe forcibly through the other—note whether one side or the other is stopped up.

If any of these conditions exist, or are of frequent recurrence, the teacher will refer the case to the principal or county superintendent, who will notify the parents or guardian of the child, as the law requires.

COLORADO PUBLIC SCHOOLS.

RECORD CARD.

Date.....

TEACHER'S TESTS OF SIGHT, HEARING, BREATHING, AND MENTAL, MORAL, AND PHYSICAL DEFECTIVENESS.

City or Town.....County.....School.....

Principal's name.....Teacher's name.....

Superintendent's name.....

Pupil's name

Age.....Sex.....Nationality.....

Parent's or guardian's name.....Address.....

From 4 to 11 underline in ink the points that apply to this pupil.

1. SIGHT

Glasses used—Yes, No.....

2. HEARING

3. BREATHING

4. MENTAL ACTIVITY, (Good....Average....Slow....)
5. MENTAL DEFECTIVENESS
 1. Inattentive.....
 2. Backward.....
 3. Imbecile.....
6. FREQUENT ABSENCES.....Cause
7. MORAL DEFECTIVENESS.....Vicious personal habits.....
Moral delinquencies.....
8. PHYSICAL ACTIVITY (Excessive...Average...Poor...)
9. POSTURE.....
10. VACCINATION—Yes, No.....
11. PHYSICAL DEFECTIVENESS—Under or over development,
uncleanliness, twitchings, limping, deformity, head
tilting, offensive breath, skin eruptions, frequent
colds, hoarseness, cough, nasal, voice, pain in head,
hip, or knee, headaches, backaches, signs of fever,
signs of contagious diseases, pallor, poor circulation,
teeth (crooked, prominent, decayed, dirty), frequent
urination, enlarged glands, stuttering.

Indicate marked mental, moral, or physical defects.

DISPOSITION OF THIS CASE.....

- (a) Parent or guardian notified.....Date.....
- (b) Examination instituted.....Date.....
- (c) Result.....Report of physician returned.
- (d) State Bureau of C. and A. P. notified.
- (e) Remarks

These record cards on sheets, in pairs, are made up in pads, a carbon sheet being used between each pair.

The first of each pair bears the following footnote:

This sheet is to be sent by the teacher to the principal, or where there is no principal, to the county superintendent.

The second, being the carbon duplicate, has the following footnote:
Teacher's stub—Retain for reference.

PRINCIPAL'S OR COUNTY SUPERINTENDENT'S STUB.

To this stub attach for permanent record, when received, the duplicate record card of the teacher's test of sight, hearing, breathing, and mental, moral, and physical defectiveness, from which make up the reports to the superintendent of public instruction, to the State Board of Child and Animal Protection, and the notification letter to parent or guardian. Sections 5873a and 5995a, School Laws of the State of Colorado, 1909.

STATE OF COLORADO.

NOTICE TO PARENT OR GUARDIAN.

THIS NOTICE DOES NOT EXCLUDE THE PUPIL FROM SCHOOL.

THIS NOTICE EXCLUDES THE PUPIL FROM SCHOOL FOR... WEEKS
School..... Town..... County.....
.....19..

Mr.

Your child, ..., has been examined according to sections 5873a and 5995a, School Laws, '09, and it is found that.....sight, hearing, breathing, seem to be defective, and we advise that the child be taken to a competent physician for examination and treatment.

If this notice with a satisfactory report from the physician employed is not returned to the child's teacher within a reasonable time, it will be considered as failure, refusal, or neglect to comply with the law, which will necessitate report of the same to the State Bureau of Child and Animal Protection.

In case of contagious disease, the pupil will be excluded from school in accordance with the rules of the State and local boards of health..

Principal.

Co. Superintendent.

Date of notification of parent or guardian.....

Examination instituted

Treatment begun

Result to child.....

Date of notification of State Bureau of Child and Animal Protection

Remarks: on further course of case.....

REPORT OF PHYSICIAN.

Town County Date 19..

Teacher.

Dear Sir: Madam:

I have examined.....in accordance with

²Cross off words not needed.

your recommendations and find the following conditions, and have instituted the treatment as noted:

Eyes
Ears
Nose
Throat
Teeth
Spine
General conditions
Contagious disease
Diagnosis
Remarks

Respectfully,

Physician.

Address.

Physician.

Attach to original teacher's record when returned.

PHYSICAL EXAMINATION REPORT TO SUPERINTENDENT OF PUBLIC INSTRUCTION.

Male. Female. Total.

Enrollment
Number of pupils examined.....
Number of pupils with defects of sight
Number of pupils with defects of hear-
ing
Number of pupils with defects of
breathing
Number of pupils with mental defects
Number of pupils morally defective....
Number of pupils physically defective
other than enumerated
Total number of pupils with one or
more defects

Superintendent of Schools.

....., 191.. of County

From the Biennial Report of the State superin-
tendent of Public Instruction, 1909-1910. Mrs.
Katherine M. Cook:

Physical Examination:

Among several worthy laws concerning schools, enacted by the Seventeenth General Assembly, no one was of greater importance for the protection of children than that concerning the physical examination of children.

While the returns are incomplete and not wholly accurate, owing to unfamiliarity of teachers with the law and its provisions in this, the first year of its existence, they are sufficiently complete and reliable to give a fair idea of its importance.

The report is tabulated by counties, and will be found among statistics at end of this volume. Out of the sixty counties in the State, Dolores, Garfield, Kiowa, Larimer, Park, and Washington failed to make any return. The law was not complied with by the superintendents, principals, and teachers of these counties, and the children in their schools are not included in the totals.

In the remaining fifty-four counties 108,798 children are enrolled. Of this number 92,427 were examined, with the result that 41,546 were found defective physically, mentally, or morally to a degree sufficient to warrant reporting their condition to their parents, in accordance with the terms of the law.

Surprising as this result is, and certain as it is to be received with incredulity by all who have given the matter little or no attention, it is still short of the percentage of defectives found elsewhere. It must be remembered that this examination is pretty thorough and searching, and covers defectiveness of any kind, which in many cases might go unnoticed for years, even by the parents of the children. This is especially true of the sight, hearing, and breathing tests. The law provides that especial attention be paid to the eyes, ears, nose, throat, teeth, and spine. If defectiveness were looked for in no other organs, and if mental and moral defectiveness were left out altogether,

the number of children found defective would very nearly equal the total found. In fact the returns show that sight, hearing, and breathing alone would account for nearly all of them. The number of adults who have perfect sight, perfect hearing, and whose air passages are in normal condition is very small, indeed; and while the proportionate number of children normal in these respects is higher, it is much lower than most people suppose.

The returns from Colorado show forty-five per cent. of defectiveness in the children examined. In Chicago, out of 123,897 children examined, fifty-one per cent. were found defective; in Kansas City fifty-six per cent. were found defective.

Out of the 41,546 children found defective in Colorado, defects of sight existed in 26,978, hearing in 6,155, breathing in 8,045, and other unclassified defects, 21,825. There were 3,071 mental defectives and 746 moral defectives.

In Chicago 32.3 per cent. had defective teeth, twenty per cent. enlarged tonsils and 15.9 per cent. defective vision. In Colorado 29.1 per cent. had defective vision, a difference which our brilliant sunshine and frequent dust storms may perhaps account for in part.

In Colorado 6.6 per cent. had defective hearing and 8.8 defective breathing.

It was found in one school in Denver, the only one in which such a record was kept, that the teachers' examination made under the directions from the superintendent of public instruction, was confirmed by the physician's diagnosis in ninety-eight per cent. of the cases discovered by teachers and reported to the parents for medical examination. If a like degree of accuracy or anything approaching it was reached in the rest of the schools hardly anything better can be asked.

Without going further into an analysis or comparison of the results obtained than to say that they show for the first year a value and importance not merely justifying the law, but fixing its place as a permanent part of our school law not less in importance than the instruction for which our schools have heretofore existed, it may be said that Colorado is far in the lead of any other State or country in the world. England is the most progressive foreign country in this respect, yet she ranks below Massachusetts, and the superiority of the Colorado law over that of Massachusetts is so great as to be practically out of comparison.

Out of the 41,546 cases of defectiveness reported to the State superintendent of public instruction as having been discovered, and presumably reported to the parents of the children, 221 cases were reported by teachers to the State Bureau of Child and Animal Protection for failure of parents to have the medical examination indicated by the teachers' examination made. Whether this was the total number of cases which should have been reported we have no means of knowing. In the absence of further information it may be assumed that it does not depart far from the total which should have been referred.

With one exception the parents in all these cases were induced by letter or by the visit of an officer to do whatever the children's condition required. In the one case where it was necessary to bring the parents into court the child's throat was nearly closed by enlarged tonsils and his health seriously affected. At the trial the father was sentenced to thirty days' imprisonment.

Owing to the failure of some superintendents, principals, and teachers to comply with the law and the reluctance of others to do so the instructions of the State superintendent of public instruction this year contain the following paragraphs:

"The requirements of the law providing for the examination and care of children in the public schools are mandatory upon teachers, principals, and county superintendents.

"In all cases where teachers, principals, and county superintendents fail, neglect, or refuse to comply with the terms of the law it will be the duty of the State Bureau of Child and Animal Protection to enforce against them the provisions of the following sections of the law for the protection of children: "It shall be unlawful for any person having the care or custody of any child wilfully to cause or permit the life of such child to be endangered, or the health of such child to be injured, or wilfully to cause or permit such child to be placed in such a situation that its life or health may be endangered . . . or in any other manner injure such child.

"Any person who shall be convicted of violating any of the provisions of the preceding section of this act shall be fined not exceeding one hundred dollars, or be imprisoned in the county jail not exceeding three months, or both, in the discretion of the court; and upon conviction for a second or any subsequent offense shall be fined not exceeding two hundred dollars or be imprisoned in the county jail not exceeding two months."

A quantity of informative circulars, one on the care of the teeth, prepared by the Denver Dental Association, and one on the care of the eyes, ears, nose, and throat, prepared by the Humane Education Society, Denver, were sent to the county superintendent of schools, accompanied by the following letter:

STATE OF COLORADO
DEPARTMENT OF PUBLIC INSTRUCTION.
DENVER.

February 14, 1910.

To the County Superintendent of Schools:

I am sending some circulars on the physical care of children, prepared by the Humane Education Society and Denver Dental Association. They are for general distribution. It is hoped, by those who have issued them, that they will prove of some assistance in the enforcement of the new law on the physical examination and care of children in our public schools.

Respectfully,
KATHERINE M. COOK.

The circulars mentioned have, also, been incorporated in the State course of study.

While we were somewhat lenient in the enforcement of this law, during the past year, because of its newness and the fact that parents and teachers were both unfamiliar with its provisions, I believe it should hereafter be rigidly enforced, and I feel the utmost confidence in the ultimate good to be accomplished thereby.

OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
DENVER, COLORADO.

CARE OF THE TEETH.

Teeth that are well cared for are beautiful as well as useful.—Their chief use is to prepare the food for the stomach—to grind the food and mix it with the saliva. Food that is not thoroughly chewed causes indigestion and constipation.

Teeth should last to the end of life.—If they do not it is due to decay or loosening.

Decay is caused by acids, formed from bits of food left after eating, along the edge of the gums, between the teeth, and in the crevices of the grinding surfaces.

Loosening of the teeth is caused by diseased gums.—Tartar is the chief cause of diseased gums. Swollen and bleeding gums are diseased gums. The way to prevent decay and loosening of the teeth is to keep them clean. The general health will be better if the teeth are kept in good condition, so that the food can be thoroughly chewed.

If children are taught to chew their food thoroughly their teeth will grow strong and healthy.—Teeth can best be kept clean by scrubbing with a fairly stiff brush, with bristles well apart, to reach between the teeth, and some good powder or paste. Scrub all sides of the teeth, and in all directions, for at least two minutes, night and morning.

Irregularities of the teeth should receive careful treatment, especially those which make it impossible to close the teeth properly, thus leading to poor digestion and mouth breathing.

The first permanent molars are the most important teeth in the mouth.—They come at about the sixth year, and are located right back of the temporary or "baby" teeth, and are often neglected because they are mistaken for temporary teeth.

The temporary teeth should last until the permanent ones come in.—Any that decay before that time should be filled. This is necessary to the good health of the child. As good care should be taken of the temporary teeth as of the permanent ones. Too early extraction of the temporary teeth is a cause of deformities of the mouth.

A dentist should carefully examine the teeth at least twice a year.—A bad condition of the throat, the nose, and

the ears is made worse by decayed teeth. They add to the chances of catching infectious diseases. Well cared for teeth and a clean mouth help prevent *tuberculosis*.

CLEANLINESS IS THE BEST GUARD AGAINST DISEASE.

The sense of hearing is very valuable to every one.—Although each person has two ears well protected in dense bone, they are readily reached by diseases that attack the lining membrane of the nose and throat, such as colds, la grippe, measles, scarlet fever, and diphtheria.

The ears are connected with the throat by two gristle-like tubes. It is through these tubes that air is forced into the middle ear cavities during the act of swallowing. For good hearing there must be air in the middle ears to balance the air pressure from without.

There is a pair of glands, called tonsils, one on either side of the root of the tongue, and also naturally (normally) a small tonsillike mass called adenoids, in the upper part of the throat, close to the tubes leading to the ears.

When either the tonsils or the adenoids become too large, they interfere with the air entering the tubes to the ears and with the circulation of the blood to and from the ears. As a result the hearing becomes dull, especially when the child has a "cold." Repeated "colds" bring about lasting dullness of the sense of hearing.

Children with earaches almost always have adenoid growths.—Earaches should have prompt and proper care for they may result in deafness or in serious disease of the bone in which the middle ear is located.

"Running ears" are diseased ears.—If neglected they result in damaged hearing and are a source of danger to life. All such ears should be kept clean and have proper treatment.

Nasal breathing is not only necessary for the preservation of hearing, but for the general health. It is known that even in dogs when nose breathing becomes impossible the hair falls out, the skin grows wrinkled, and asthma sets in. And the same thing happens to the puppies born when the mother dog is so affected.

Bony deformities and other growths inside of the nose may also prevent nose breathing and, like tonsils and adenoids, by causing mouth breathing, give rise to deformities of the upper jaw, irregular teeth, and to a number of nervous troubles and diseases, such as St. Vitus's dance, night terrors, headaches, restlessness, night sweats, mental dullness, backwardness in school, asthma, rheumatism, and tuberculous glands of the neck.

Mouth breathers are more liable to contagious diseases and to diseases of the bronchial tubes and lungs, which are more apt to be fatal than in nose breathers.

Practically all of the causes of mouth breathing are curable, and the earlier they are removed the easier it is for the child to overcome the "mouth breathing habit."

(Information for parents. Prepared for the Humane Education Society, Denver, by Dr. William C. Bane, Dr. Osee W. Hoffman, and Dr. Mary E. Bates.)

EYES.

Eyes are necessary for self protection and to make a living, yet they are the least cared for and the most abused part of the body.

Eyestrain is an excessive or abnormal effort of an eye or a pair of eyes to maintain perfect vision (sight).

Eyestrain is due chiefly to some defect in the shape of the eyeball or to weakness of the muscles of the eyes. It may also be due to or made worse by overuse or unwise use of the eyes.

A perfect eye can be strained by over or unwise use just as a perfect arm or leg can be. There are few perfect eyes.

The imperfect eyes are on a strain whenever open.—They are more easily harmed by over or unwise use. This means a leakage of nerve force in the eyes and in other parts of the body. Such eyes may seem to be perfect and yet by using up more nerve force than their share, in order to see, may lead to diseases in other parts of the body thus deprived of nerve force.

Slight imperfections of the eyeballs causing small amounts of eyestrain often do more harm by continuously undermining the general health than do the greater ones that are more readily felt and hence more quickly relieved.

Reading while lying down, and by poor light, night or day, is harmful to the eyes.

SOME BAD EFFECTS OF EYESTRAIN.

Headache and neuralgia, particularly over the brows and in the back of the head and neck.

Inflammations: redness, scales, crusts, and styes of the eyelids and ulcers of the eyeball.

Cross eyes: the eye that crosses usually loses vision from nonuse and may become practically useless if not corrected.

Reflex nervous conditions: epileptic spasms, convulsions, "nervousness," restlessness at night, palpitation of the heart, St. Vitus's dance, nausea, vomiting, indigestion, a "run down" and even more serious physical conditions are common.

Watering of the eyes and blurring, when reading, sewing, or doing other near and fine work.

Backwardness in mental growth, and truancy.—Eyestrain produces an irritation in the brain expressed by a restless desire to run away from school (and near work) and then they stay away for fear of failure in class.

Tilting of the head.—When constant this is often due to an effort to straighten out crooked vision and may lead to spinal curvature with its bad effects.

Holding the work close to the eyes shows eyestrain.

When these conditions are caused by defects in the eyeballs, glasses are necessary and they cannot be permanently cured without glasses.

Children's eyes should always be tested with pupils dilated by atropine (belladonna).

Spectacles are better than nose glasses.

It is as necessary to keep the glasses on straight as it is to have a proper fit. If glasses are not comfortable or do not fit they will be taken off and not worn. Because a child refuses to wear the glasses it is no sign that he does not need properly fitting spectacles. (Prepared for the Humane Education Society by Dr. William A. Sedwick and Dr. Mary E. Bates.)

The following leaflet was prepared for use in the Denver Public Schools by one of the Denver School Inspectors, Dr. Rose Kidd Beere, and in connection with it the notice following thereafter is used:

DENVER PUBLIC SCHOOLS.

School District Number One in the City and County of Denver, Colorado.

NOTICE TO PARENTS.

We ask your help in the effort we are making toward the education of the children in the care of the teeth.

Much bad health comes from decayed, unclean teeth.

Your part:

To see that your child brushes his teeth after every meal.

If he has decayed teeth, take him to a dentist.

Our part:

To give proper instruction on the care of the teeth.

To provide tooth brushes for seven cents.

Food left about the teeth decays and forms lactic acid which destroys the enamel.

Green stain, if not removed by a dentist, should be brushed persistently using precipitated chalk, occasionally powdered pumice stone.

The temporary (baby) teeth should be kept filled and in place until gradually pushed out by the coming second teeth, for if lost too early those taking their places are apt to come in crooked.

The sixth year molar often begins to decay early. It is the sixth tooth from the middle line, on each side, above and below. Watch it and have it filled if it shows a spot of decay, for no tooth will ever come in its place if it is lost.

Teeth should be examined every six months.

DENVER PUBLIC SCHOOLS.

School District Number One in the City and County of Denver, Colorado.

To the Parent or Guardian:

An examination of your child indicates that the child's teeth need attention.

I suggest that a dentist be consulted.

The dentist who examines this pupil is requested to sign and date this card and return it to the child, who will return it to the teacher. A subsequent report of the result of this treatment will be appreciated.

.....Principal.

I have this day examined the above named pupil and have begun treatment.

Date.....

.....D. D. S.

Any law which adds to the requirements and duties of the teacher may meet with her opposition if she is ignorant of its need, its objects and its benefits; if she is blind to its absolute and relative importance and indifferent to her true mission and opportunity, determined to earn her salary the easiest way.

When schooling ceases to be the present senseless routine of imparting and receiving a hodgepodge of miscellaneous information and becomes a truly educative process the physical welfare of the pupil will be recognized as the prerequisite of successful mental, moral, and spiritual development.

The demand which the Bates Law for the Examination and Care of Public School Children has created for a better understanding of mental, moral, and physical defectiveness and their interrelations has shown the need for the special instruction of teachers therein as well as their special training in the methods of examination and the enforcement of the law.

The State Bureau of Child and Animal Protection has kept Dr. W. R. Callicotte, professor of moral and humane education, in the field throughout the State for that purpose where such instruction has not been furnished by other authority, and the State Normal School at Greeley has added to its curriculum such a course which will be given by Doctor Callicotte. Proficiency in performance of her part in the law will doubtless soon become mandatory before a would be teacher can obtain her certificate.

In Denver, during the present school year, the Denver School Board has employed two school inspectors, who have supplemented the work of the teachers where the teacher found defectiveness. This has operated to the better protection of parents from needless recourse to a physician and a better differentiation and comprehension of defectiveness, as well as a training of the teachers in their duties under the law. The discovery by Doctor Beere of scores of cases of trachoma in the public school maintained by Denver in the State Home for Dependent and Neglected Children, was one of the benefits of this additional medical inspection, as desirable in its way as the release of the teacher from her responsibility by a purely medical inspection would be undesirable.

As a State proposition paid medical inspection by physicians is at present a financial impossibility. None of the many valid objections to possible political incompetents as such inspectors apply to the Colorado method.

Here the benefits are not limited to the examination made at the beginning of the school year, for ours is a system of continuous observation, including both prophylaxis and cure.

The foolish and vicious trend of the times promoted by the juvenile courts and other influences, to relieve parents of their obligations and responsi-

bilities to their children, and to the community for the welfare of their children, by assuming such obligations and responsibilities or placing them elsewhere, and the equally foolish and pernicious doctrine that, *per se*, "parents know what is best for their own children" and will therefore do what is best for them, find no support in the Bates law.

The law was designed to fit conditions in Colorado; to utilize the public school system in a proper and available way; to obtain at a minimum cost a practically continuous observation and investigation of the health and needs of school children; to hold parents responsible for the relief and cure of defectiveness in their children; to permit them freedom of choice of a "competent physician or surgeon"; to furnish information to parents of value to them, their children and the community; to assist them wherever necessary for the best good of the children and to provide a legal way to compel delinquent parents to meet their legal parental obligations and responsibilities.

The following letter presents the subject from the standpoint of the law's enforcement by the Bureau of Child and Animal Protection.

THE STATE BUREAU OF CHILD AND ANIMAL PROTECTION.

State Capitol, Denver.

DENVER, COLO., March 17, 1912.

Dr. Mary Elizabeth Bates,
520 Majestic Building, Denver.

My dear Doctor:

There are no general statistics available on the operation of the law requiring the physical examination of school children later than those furnished by the State superintendent of Public Instruction in her biennial report for 1909-1910. They covered the first year of the law's enforcement, it having been passed in the spring of 1909. The next biennial report of that office will appear in January, 1913, and will be for the years 1911-1912.

However, the statistics in the report for 1909-1910 will answer the purpose of determining the value of the law and its practical working. We have no reason to expect any considerable changes in the next report except, probably, a more complete and intelligent observance of the law by teachers. There is no question of its being a permanent and most valuable addition to school legislation and of its broadening from year to year the narrow view heretofore held of what the school and the teacher ought to do for the child.

Not so many cases of neglect or refusal by the parents to act upon the teacher's notice were referred to this office the second year as the first. As might be expected, few such cases came from places which furnished many the first year, and *vice versa*. We have no reason to think this is due to lax observance of the law but rather to general acquiescence and compliance with it. Some towns where teachers and principals are known to be thorough going and alert report no difficulty in any case.

We have thus far had only three cases where our officers found it necessary to bring parents into court under the general law against wrongs to children for refusing to have examination made and treatment begun after notice from the teacher. In two of these cases the parents were convicted and given, each, a thirty day sentence in jail, which they escaped serving by complying promptly with the law. The third case has not yet been tried but we expect, without doubt, to convict.

It should be said that this bureau makes all reasonable effort to secure compliance of parents with the law without court action. When teachers notify us of the failure of parents to respond to their notices of apparent defective conditions in their children we, in our turn, notify the parents that they must comply with the law within ten days or give some good reason for not doing so. At the same time we send a notice to the teacher and ask to be informed about all who do not act upon our notice within the ten days. At the expiration of ten days if the teacher has not notified us of proper action by the parents we send our

officer to the delinquents. In all the cases we have thus far had, now probably approaching a thousand, we have secured compliance with the law in all but the three cases already referred to without going into court.

After an experience of nearly three years we can suggest no necessary amendments to the law under the conditions existing in this State.

In our opinion the law in usefulness and value occupies the front rank, sharing it with the general law forbidding and punishing wrongs of any kind to children, the compulsory education law and an adequate law requiring moral and humane education, ... these four.

Sincerely,
E. K. WHITEHEAD, *Secretary.*

The object of this law was to provide a way by which all the public school children of Colorado might be under continuous, intelligent, and interested observation with the view of aiding them to achieve the highest possible degree of physical, mental, and moral health, and to provide adequate means for enforcing such attention and care by parents as might be necessary therefor. The experience of the three school years that have elapsed since the law was passed indicates that this object is being attained.

520 MAJESTIC BUILDING.

Abstracts and Reviews.

NEPHRITIC HYPERTENSION.*

Clinical and Experimental Studies.

BY THEODORE C. JANEWAY, M. D.,

New York,

Professor, Practice of Medicine, Columbia University.

Seventy-five years ago Richard Bright first published his observations upon the relation of hypertrophy of the heart to disease of the kidneys. His work was a combination of most careful and painstaking clinical observation with subsequent post mortem examination wherever possible. He showed that in the greater number of patients with cardiac hypertrophy there were definite lesions in the kidneys. He showed further, however, that cardiac hypertrophy did occur in patients whose kidneys were to all appearances normal. Bright did not indulge in fanciful speculation, but contented himself with the statement of observed facts. Those who have come after him in the study of this subject have supplied the speculative and fanciful interpretations of which we hear so much.

It was only after the perfection of the Riva-Rocci sphygmomanometer that the relation of high blood pressure to the presence of cardiac hypertrophy and renal disease was observed and subjected to study. And it has been only within the past twelve years, since a number of the life insurance companies have made blood pressure readings a matter of routine, that we have had a really correct index of the normal and abnormal limits of this pressure. We may now safely consider a blood pressure above 160 mm. Hg. as abnormal and, in all probability, more extended records will somewhat lower this figure.

In the following presentation I will use the term "renal disease" in the broad sense and not attempt

to limit the expression "nephritic hypertension" to any single anatomical type of renal lesion.

Among the first of the theories offered to explain the occurrence of hypertension and cardiac hypertrophy was that of reduction in the renal circulation through disease involving the glomeruli. This seemed, at first sight, an adequate explanation for those cases in which considerable disease of the kidneys was found, but it failed to account for those in which there was little or no renal involvement. Further, it was shown that partial ligation of both renal arteries did not cause any material alteration in the systemic blood pressure. The same negative results were obtained in the experimental production of thrombosis of the renal vessels by the injection of paraffin. Other workers approached the problem by removal of one kidney in dogs and then caused graded reduction in the size of the other by successive excisions of portions. In a long series of such experiments five dogs showed an average rise in blood pressure of 21.5 mm. Hg. together with some hypertrophy of the left ventricle of the heart. I have recently conducted experiments on dogs along similar lines, excising one kidney and ligating some of the branches of the renal artery at the hilum of the other, thus causing infarction and reduction in the total renal tissue of the animal. In two dogs I obtained prolonged rise in blood pressure of a moderate grade, combined with albuminuria and polyuria.

As a result of such observations on the reduction of total kidney volume in dogs there are three constant changes which have to be explained:

1. Vascular hypertonus.
2. Hypertrophy of the left ventricle.
3. Hypertrophy of the left auricle and right ventricle.

The first is now recognized as a constant phenomenon secondary to such reduction and has not been explained. The second is held to be secondary to the continued hypertension induced by the hypertonus of the systemic vessels. The third is in turn secondary to the development of stasis through partial failure of the hypertrophied left ventricle.

To account for the increased tonus of the systemic vessels seen in these experimental studies and in clinical cases in man, two theories have been offered. The first is based upon the assumption of an increased viscosity of the blood. This is little more than a theory, as it is unsupported by either experimental or clinical observations and, in case of the greatest increase in blood viscosity, such as extreme polycythemia, high blood pressure is often absent.

The second hypothesis is the more important. It predicates the existence in the blood of chemical bodies which cause a stimulation of the vasoconstrictor mechanism. This hypothesis affords ground for study along a number of lines. Two chief theories have been suggested, namely, first, that there is some accumulated pressor substance, probably arising from renal autolysis, constantly thrown into the blood stream; the second, that there is an increase in the epinephrine content of the blood.

As to the first hypothesis, we may state that the evidence is variable and very conflicting and, on the whole, is not convincing. One of the most impor-

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, February 15, 1913.

tant objections that can be raised from the clinical point of view is that the hypertension is the greatest in those cases which are the most chronic and it is precisely these in which the autolysis of the kidneys is the least marked.

The epinephrine theory was first propounded by Neusser, who assumed an increased activity of the suprarenals due to a hyperplasia of the glands. He reported several cases in which this hyperplasia could be demonstrated, but it has been shown that such an occurrence is rare and that in other cases there may be a distinct hyperplasia without any increase in the blood pressure. Experimentally it has also been shown, in technically perfect operations, that complete exclusion of the suprarenals from the circulation is not associated with a fall in the blood pressure. Many observers, however, contended that even in the absence of any hypertrophy of the adrenal glands there might be an increased production of epinephrine. They sought to prove their point by determining the amount of blood pressure raising substance present in the blood taken from patients showing hypertension and comparing this with results obtained with the blood from normal individuals. Results were again conflicting, some reporting a greater vasoconstriction from the blood in the hypertensive cases, others reporting no difference. Those who found the blood from the hypertensive patients more active held that this activity was due to an increased epinephrine content, and, therefore, regarded this as confirming the epinephrine hypothesis. The careful work by O'Connor showed the fallacy of these contentions by the demonstration that epinephrine would cause an inhibition of the movements of the excised and perfused living intestine, while the substance found in the blood in the hypertensive cases produced the opposite effect, although it did cause vasoconstriction. He further showed that this pressor substance could be found only in blood which had been clotted, and that if clotting is prevented by citrate or hirudin no such substance is demonstrable.

A further test for the presence of epinephrine is its power to cause dilatation of the coronaries when perfused through them. Applying this test, I have been able to confirm the findings of O'Connor, showing that the substance which caused vasoconstriction of the carotid artery also constricted the coronaries, and was, therefore, not epinephrine. I further found, with O'Connor, that this pressor substance is to be found only in blood which has undergone clotting. It may, therefore, be regarded as resulting in some way from the chemical processes which the blood undergoes in clotting and not as epinephrine.

In unclotted blood from hypertensive patients I have been unable to find any trace of epinephrine using the following biological tests: 1. The perfusion of the fresh carotid artery of the ox; 2, perfusion of the coronaries; 3, perfusion of a loop of living intestine; 4, the frog's eye test of Meltzer.

The study of the epinephrine content of the blood in hypertensive patients may be approached from one other side. It has been shown that in animals whose livers are well stored with glycogen the administration of epinephrine will cause a hyperglycemia. Now in one hypertensive patient at pres-

ent under my care we have found a hyperglycemia. The condensed table of observations is given.

Date.	Diet.	Blood sugar.	Blood pressure.	Urea concentration.
November 25....	NaCl poor	0.099	235	0.168
December 20....	NaCl poor	0.133	220	.....
x January 18....	each 2 hours after	0.201	230	0.188
x January 22....	100 gm. glucose	0.192	225	.....
x February 8....	N poor	0.1605	205	0.375

A noncritical analysis of these findings seems to offer strong support to the view that the hyperglycemia in this case offered an index of the presence of an excess of epinephrine in the blood and that this was, therefore, the cause of the hypertension. Critical inspection, however, shows that there is no relation between the blood sugar concentration and the blood pressure, and that the two are independent phenomena. The explanation suggested is the retention by the kidneys of toxic products of metabolism, and this is strongly supported by the extremely high urea concentration found. At the times marked x the blood was tested for epinephrine and, while some of the tests were very suggestive, in no single specimen was I able to secure positive results by three of the four methods used, although two were often positive.

In view of these confusing results in the epinephrine tests, I gave a dog a constant injection of a known amount of epinephrine and took blood one minute before the cessation of the injection, and while the blood pressure was still high. The results lead me to the statement that no proof of the presence of epinephrine in the blood is sufficient unless at least three different methods of testing give positive results.

From these and other observations we may conclude that it cannot be assumed that epinephrine exists in the blood of hypertensive patients in sufficient amounts to maintain high blood pressure.

Basing my remarks upon my observation of 459 patients with blood pressures above 160 mm. Hg., I would group them into two classes:

1. Hypertensive cardiovascular cases.
2. Hypertensive cases with cerebral symptoms.

The first group shows disease of the renal arterioles, but there is reason to believe that this may be secondary to a maintained functional hypertonus and hypertension. In addition, patients frequently show arteriosclerosis and cardiac hypertrophy, and they die from apoplexy. In my opinion the hypertonus has its origin elsewhere than in the kidneys in some factor which disturbs the vasomotor regulatory mechanism. With these cases we certainly see the association of gout, and, in some instances, dietetic and hygienic measures seem to give prolonged relief in the earlier stages, showing conclusively that, then at least, the hypertension is functional and not due to organic change in the vessels. We know of only one definite cause of this functional hypertension, that is lead. In addition to what has been said, I believe that we must consider renal retention as a cause in a number of the cases. This is supported by experiments already cited and by clinical observations in cases of total ureteral obstruction by cancerous growth. In the later stages of this type the development of chronic passive congestion may lead to the secondary renal changes so often found at autopsy.

The second group is of equally obscure etiology,

but it presents a different clinical picture. These patients usually show polyuria and in them uremic symptoms are prone to develop.

In support of the retention theory I may cite my own observations, in which I have seen transitory hypertension in cases of acute nephritis.

Lastly, let me urge that in the present state of our knowledge it were wise to treat these cases of both groups from a purely clinical standpoint rather than in the light of present renal pathological anatomy.

The necessity for further experimental work along these lines is patent to all, but it is my belief that we must also resort again to the methods of Richard Bright, observe with exquisite care both at the bedside and in the post mortem room, and confine our statements to fact, leaving theory alone as likely to confuse the issue.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXX.—How do you treat subacute and chronic laryngitis? (Closed January 15th.)

CXXXI.—How do you treat psoriasis, and with what success? (Closed February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXIX was awarded to Dr. Ben N. Wade, of Portland, Oregon, whose article appeared on page 244.

PRIZE QUESTION CXXIX.

THE MANAGEMENT OF CHRONIC ULCERS OF THE LEG.

(Concluded from page 354.)

Dr. Thomas W. Jenkins, of Albany, N. Y., points out that—

Three things are necessary: The ulcer must be softened, protected, and supported, the last being the most important. To soften an ulcer, it may be poulticed, applications of the clay preparations may be made, or hot water compresses applied, the latter being the most desirable. If the edges of the ulcer are markedly indurated, they should be incised with a very fine sharp bistoury.

They may be protected by dressings of carbolized petrolatum, ten per cent. boric acid, or clay preparations may be used. If eczematous, diachylon

ointment should be used or an ointment of salicylic acid, one part, zinc oxide, three parts, and petrolatum, eight parts, make a very good dressing when the solvent action of salicylic acid is needed, as in thickened, eczematous skin.

But the main feature and often the only one needed, is to support the circulation of the leg with a proper bandage, extending from the base of the toes to the knee. The bandage I have exceedingly great success with is the stockinette bandage. This is the material used for the cuffs and ankle bands of underwear and may be purchased at any knit goods store. It can be purchased in lengths of five yards, and as it is a cylinder, it should be slit up on each side, and you have two bandages which will last from three to six months at a cost of fifty cents. After an ulcer is healed, patients should be instructed to wear these bandages continually, putting them on before getting out of bed and taking them off at night, always rolling them up as soon as taken off, as this maintains their elasticity. Objections may be made that this bandage is too bulky and too warm, but it is not true. It is a comfort and a blessing.

Dr. Sterling O. Fields, of Newport News, Va., writes:

Since by far the greater number of these cases have their origin in the existence of varicose veins, syphilis, tuberculosis, or arteriosclerosis (phlebosclerosis), our line of procedure from a preventive point of view is evident. So much for the prophylactic aspect.

The amelioration or correction as far as possible of the causal factor, whether this is general or local, is logically the first step in the active treatment. Since the ulcer is associated in the greatest number of cases with a varicose condition of the veins of the lower extremity, no plan of treatment can hope for much success which leaves out of consideration the concomitant phlebectasia. For this varicose condition (when present) we may employ the milder forms of treatment, as the elastic stocking, Trendelenburg's open saphenous ligation, etc.; or the more radical methods, as Schede's circumferential incision, open resection of the varicose trunks and tributaries, the C. H. Mayo simplification of Narath's method, this last being most effectual as it also includes excision of the ulcer and the application of Ollier-Thiersch grafts.

Where syphilis is the suspected or proved etiological factor, a vigorous antisyphilitic course is indicated. Personally, the writer is partial to the so called intensive treatment with mercury and the iodides orally and neosalvarsan intravenously.

If there is a tuberculous basis for the ulcer, the line of treatment, hygienic, dietetic, etc., is unmistakably indicated.

If the presence of an arteriosclerosis (phlebosclerosis) seems to be a factor in the ulcer's production, we must adopt measures looking to the relief of the vascular hypertension—the use of the iodides; the restriction of the nitrogenous portion of the diet; the limitation of muscular and mental exertion; the proper condition of the emunctories, etc. In every variety of chronic leg ulcer the surgeon will find it necessary to keep the bowels and

kidneys active, and to tone up the system generally.

There are as many varieties of local treatment as there are individual surgeons. The plan, however, most universally successful in my own cases and the cases which came under my observation while on duty in the outpatient department of two hospitals is as follows:

The patient is enjoined from using the limb any more than necessary, even being placed in bed when possible. The affected limb is baked daily at moderate heat for half an hour in the hot air apparatus, the ulcer having been previously cleansed with warm normal saline solution. Then the whole limb is bathed in sodium bicarbonate (five per cent.) or boric acid (five per cent.) solution as hot as can be borne, and rubbed dry, this not only improving the cutaneous and vascular tone of the limb, but also being invaluable for the eczema usually found in the neighborhood of the ulcer. If crusts are marked about the ulcer a little sterilized liquid petrolatum will loosen them, and the use of water and ethereal soap will effectually remove them. As a further step in the treatment the ulcerated area is touched with a two per cent. solution of silver nitrate; a hot moist dressing (normal saline) is then applied if practicable, if not a dry, sterile dressing is almost as effectual.

In many cases the so called Unna's dressing applied from the roots of the toes to just below the knee and allowed to remain on about four to six weeks is very satisfactory.

If the ulcer is adherent to deeper structures, radiating incisions in its bottom, going through the deep fascia, not only permit contraction, but allow granulations to sprout in the cuts. Where the granulations become exuberant, touch them with five per cent. silver nitrate solution and curette lightly until sounder tissue is reached. Remove any sloughing parts about the ulcer; open up any sinuses; remove any dead bone. The faithful application of the foregoing principles has brought satisfactory results in any number of cases in which the outlook seemed anything but bright.

Dr. Louis Nagorsky, of New York, remarks:

To treat chronic ulcers of the leg successfully it is necessary to ascertain the cause of their presence and persistence. Hence it is essential to enter into the patient's history.

Under constitutional conditions we may learn as the supposed cause gout, rheumatism, syphilis, or tuberculosis. Therefore we must treat the disease as well as the local condition and not confine our attention solely to the local condition, the ulcer. Since varicose ulcers, however, are most commonly met with, these only shall be considered, and the treatment of other forms of ulcers due to constitutional derangement, omitted.

Of the numerous methods of treating ulcers (varicose) of the leg, I have found the following to be very serviceable: A laxative, such as magnesium sulphate, should be taken by the patient every morning before breakfast. If the patient is in poor physical condition his general health should be taken care of.

In ambulatory cases (and these are nearly al-

ways met with) where the ulcers are not discharging, and not very large in size, I apply over the ulcer a thin layer of sterile, absorbent cotton previously dusted with bismuth subgallate. Then a rubber bandage, three inches wide and six feet long, is evenly wound about the leg so that no folds of skin result. This is kept on all day; the patient is enabled to go about his business and in comfort. At bedtime the rubber bandage is removed and placed in a two per cent. carbolic acid solution.

The leg is washed and carefully dried and lotio calaminaris is applied. A gauze bandage can be applied to prevent soiling the bed clothes. In the morning the rubber bandage is carefully dried and applied again with the same treatment as described above. The advantage of the rubber bandage over other bandages is that it permits of stretching and gives the arteries more chance properly to function. It also regulates the blood pressure in the vessels of the leg.

We know how obstinate chronic ulcers are. Granulations are slow to form and usually the margin of the ulcer becomes edematous and tense, causing pain and distress. Multiple incisions along the margin alleviate the tension and pain, and healing takes place more rapidly.

If inflammation about the ulcer is present, wet dressings of borosalicylate give immediate relief. Unna's paste, applied next to the skin, is an excellent method of treatment, but I think should not be used in ulcers which discharge. As the paste offers no avenue for drainage, the secretion must necessarily collect, and as it is a positive fact that moisture interferes with healthy growth of granulation tissue, the paste is contraindicated. The same holds true for ointments of all kinds.

For large ulcers, strapping offers good results, especially when the limb is kept at rest. Here I might add that rest and elevation of the limb should be enjoined in all cases.

Of the stimulating ointments, scarlet red gives most excellent results in dry ulcers. Where granulations become exuberant, cauterization with silver nitrate in form of the stick, followed by the application of an ointment, hastens the healing of the ulcer.

With ulcers that discharge, the astringent solutions, such as zinc sulphate or acetate, should be applied for a few days or till there is no more secretion. If the ulcer is foul smelling, washing with potassium permanganate solution will overcome the stench. For the eczema, often coexisting with the ulcer, any bland ointment may be used at the same time.

My routine procedure in the treatment of secreting ulcers of any size, is to dust a thin layer of antiseptic powder over the ulcer and then to apply an "apron," which is nothing else than a piece of gauze, five inches wide or more and long enough to encircle the leg, and held fast by strips of adhesive plaster. This thin covering permits the air to get at the ulcer and aids the gauze in absorbing the discharge.

In conclusion I will add that if the varicosities are extensive, all local medicinal treatment is of little avail, for, though we may succeed in healing a chronic ulcer of the leg, it is certain to break

down again at some future time; therefore extirpation of these veins should be resorted to if a permanent cure is hoped for.

Dr. Charles Haase, of Elmira, N. Y., advises:

To old indolent ulcers apply silver nitrate pencil to destroy the indolent tissue and stimulate granulation. Then apply a wet dressing of gauze saturated in a solution of normal salt solution containing 0.5 per cent. of sodium citrate. Keep dressing wet and change as often as it becomes soiled from discharge. When discharge stops apply zinc oxide ointment daily. Once a week incorporate a small amount of scarlet red into the application of zinc oxide (enough to make the ointment pink). Should the ulcer discharge freely at any time change back to the saline solution as long as necessary. If the edges of the ulcer are hard like scar tissue and are indolent, a number of radiating cuts should be made through this tissue, so that it bleeds. This stimulates granulation and epithelial proliferation. When the ulcer becomes clean, one or more narrow strips of adhesive plaster should be strapped over it. The strips should not be more than one quarter of an inch wide and should be placed about one inch apart. They should be placed so that they pull the edges together and bind them down to the surface of the ulcer. In treating recent or well granulating ulcers it is not necessary to use the silver nitrate.

The general condition of the patient should be improved; regulate the bowels; tonics, such as iron, are often indicated; massage to aid the venous circulation.

The most important aids in treating varicose ulcers are elevation, support, and absolute rest for the affected limb. They are obtained by placing pillows under the limb, bandaging and strapping, and by placing the patient in bed.

If the patient is unable to keep off his feet the ulcer should be cleaned and the entire limb strapped with adhesive plaster. The plaster should be applied in the morning before the patient gets out of bed. If the discharge shows through the adhesive plaster or pressure causes pain, cut a window over the ulcer and apply saline solution as described above. Renew straps every ten days.

Dr. A. S. McCormick, of Akron, Ohio, maintains that—

The first essential is *rest*, preferably in bed. If not able to be confined to bed the patient must keep the leg at rest in the horizontal position as much as possible. Exertion and excitement are to be avoided as much as possible and all possible sleep indulged in.

Internal treatment and feeding.—The bowels are kept regular. If a laxative is required that which works best is used, but preference is given cascara sagrada—one or two teaspoonfuls at night as required, so that not more than one day will pass without a movement. The food is plain and nourishing, omitting all fancy, trashy, greasy, indigestible matter and tea, coffee, alcohol, etc.

Local treatment.—The ulcer is daily cleaned by hydrogen peroxide or sodium perborate. After this is completed the foam is removed by clean antiseptic

absorbent cotton. Meat extract is then applied direct. Then a piece of lint is covered by the extract and applied to cover not only the ulcer but the surrounding area for a margin of one inch. This is in turn covered by a firm, well fitting, aseptic dressing and bandage. When it does not cause pain a rubber bandage is preferred.

Varicose ulcer.—I apply a rubber bandage. If no improvement results an operation is performed.

Eczematous ulcer.—I apply boric acid ointment or zinc oxide ointment, and over this dressing a rubber bandage, which must be worn also after the cure for some time.

Callous ulcer, with inflamed, hard edges causing pain and discomfort, I give internally

℞ Hydrargyri subchloridi, ...gr. iss;
Antimonii sulphurati, ...grs. ii;
Resinæ guaiaci, ...grs. ii;
Olei crotonis, ...m℥ $\frac{1}{3}$.

M. Fiat pilula. Mitte tales xii. Sig.: One night and morning for two days, then one as required.

The croton oil seems to have some specific action upon the ulcer. A rubber bandage is not advisable for such a case, as it causes pain. If the edge is thick, hard, raised, it can be softened by alternate deep and shallow incisions radiating outward like spokes of a wheel. Each deep incision should penetrate the deep fascia and extend from one to two inches beyond the edge. Then cleanse well with hydrogen peroxide and apply the beef extract as above. For an extensive, obstinate ulcer skin grafting is sometimes necessary.

Therapeutical Notes.

Treatment of Tuberculous Laryngitis, Complicating Pulmonary Tuberculosis.—Frank Neall Robinson, in *Monthly Cyclopedia and Medical Bulletin* for September, 1912, emphasizes the importance of local cleanliness in the treatment of this complication. The entire larynx should be wiped with pledgets of cotton on an applicator—lightly at first—under reflected light and with a mirror, until the patient becomes accustomed to the procedure. No local anesthetic is used, in order to avoid the secondary vasodilatation. After the cleansing the surface should be thoroughly wiped with some mild alkaline solution, and one of the albuminate of silver solutions, in the strength of 10 to 25 per cent., applied. In making the silver application a cotton swab of fair size, well saturated with the solution, is placed as far down below the chink of the glottis as possible, so that when the muscles contract it is squeezed out.

The author also requires his patients to wear a cold compress about the neck, at night only if the case is not severe, otherwise both night and day. The compress is made from an old soft hand towel or napkin, and is applied firmly but not tightly.

When pain from ulceration is severe the author uses a solution of ten grains of iodine in one drachm of alcohol and eight ounces of glycerin, to which some analgesic drug is added. He advises against the use of powders for insufflation in these cases because they tend to accumulate in the laryngeal spaces and absorb the secretions, with resulting

irritation of the mucous membrane, foul odor, as well as opportunity for inspiration pneumonia.

Voice rest is absolutely imperative, though whispering is permissible in the earlier stages.

In the use of tuberculin, sight must not be lost of the primary factor, lung tuberculosis, and the dose should be regulated both according to the pulmonary condition and the effect on the larynx, which must be carefully inspected daily.

Treatment of Aortic Aneurysm.—Pierret and Duhot, in *Echo médical du Nord* for September 1, 1912, report three new cases of aneurysm in which an intravenous injection of 0.6 gramme of salvarsan brought prompt relief from previously continuous pain. In each of these cases the Wassermann reaction was positive, and in none did any untoward results follow. In one case the pain returned in three weeks, after a long walk, but was gradually again relieved by a series of twenty injections of benzoate of mercury. In no instance was the size of the aneurysm, as shown by radiography, diminished by the treatment. The authors believe salvarsan to be without danger in aneurysms of moderate size, provided no other contraindicating lesions are present. The blood pressure is practically uninfluenced by the remedy, the tendency being rather toward a slight fall than a rise. Pain and dyspnea are relieved much more quickly than by mercury. In view of the undoubted efficacy of the latter agent and its more ready administration, however, Pierret and Duhot believe it should be reserved for cases in which daily mercurial injections and full doses of potassium iodide have failed to benefit.

Treatment of Lichen Planus.—H. G. Adamson, in the *Clinical Journal* for September 18, 1912, remarks that while arsenic is regarded by some as a specific in this affection, in the experience of others it is in but few cases that it has any effect, and then only when pushed to the limit of tolerance. Mercury bichloride, recommended by Liveing, gives good results in many cases. It may be given in doses of one to one and a half ounce of the liquor hydrargyri perchloridi, B. P. (each ounce containing one half grain of the bichloride and one half grain of ammonium chloride).

To relieve the itching a favorite application is:

R Phenolis, ... ℥x-xv;
Hydrargyri chloridi corrosivi, ... gr. ii;
Unguentum zinci oxidi, ... ʒi.
M. ft. unguentum.

A weak phenol, lead, or tar lotion may be used.

Since lichen planus often occurs in persons who have been worried or overworked, the best measure of all is to keep the patient in bed for a time.

In lichen planus hypertrophicus, with heaped up, irregularly shaped, and almost warty patches, varicose veins frequently coexisting, a plaster of salicylic acid may be applied to the diseased area and the veins supported by an elastic stocking or a bandage.

Treatment of Syphilis.—D'Arcy Power, in *Proceedings of the Royal Society of Medicine* for October, 1912, states that when, in private practice, a patient has declined to be treated by intramuscular injection, and recourse is to be had to

mercury bichloride and potassium iodide by mouth, he has found the following mixture less nauseous than that usually prescribed, both the metallic flavor of the mercury and the acidity of the iodide being successfully masked:

I.

R Hydrargyri chloridi corrosivi, { ana gr. ss;
Ammonii chloridi, { ʒi;
Potassii iodidi, ... ʒi;
Syrupi, ... ʒi;
Mucilaginis tragacanthæ, ... ʒi;
Olei amygdalæ amaræ (sine HCN), { ana ℥ii;
Olei cinnamomi, { ʒi;
Aque chloroformi, q. s. ad, ... ʒviii.

M. ft. mistura.

Sig.: Take an eighth part three times daily.

II.

R Hydrargyri chloridi corrosivi, { ana gr. ss;
Ammonii chloridi, { ʒi;
Potassii iodidi, ... ʒi;
Fluidextracti chirate, ... ℥xii;
Benzosulphinidi, ... gr. ii;
Infusi gentianæ compositi, N. F., q. s. ad, ... ʒviii.

M. ft. mistura.

Sig.: Take an eighth part three times daily.

The first preparation is for those who like sweet tastes; the second, for those preferring bitter.

Treatment of Morphinism.—Maurice Page, in *Bulletin médical* for July 20, 1912, discusses the question of avoidance of distress during the withdrawal of morphine from the isolated patient. He lays especial emphasis on the psychic distress which the highly imaginative addicts suffer under these conditions; this demands relief even more than the coexisting physical distress. The chief remedy, he has found, is to keep the patient in total ignorance of the rapidity with which the morphine is being withdrawn, and of the dose given at any one time. Contrary to what one would expect, a morphine habitué, even of long standing, is unable to tell how great a reduction of dose is being made. In this way most patients can be brought down to injections of sterile water without knowing it for three or four days. During this time they still demand and are satisfied by their injections (of water), and they are thus spared the mental agony occurring at the time of complete withdrawal. Obviously, the total period required varies with different cases. Withdrawal is carried out as quickly as possible, but without setting any definite date. In thirty cases treated by the author, the minimal time required for complete withdrawal was four days, the maximal thirty-one days, and the average, from eight to eighteen days. Of these patients, twenty-two had been taking morphine for over two years; twenty-five took more than 0.6 gramme (ten grains) daily; fourteen took in addition other drugs, such as cocaine, ether, and chloral hydrate. Eighteen had not returned to morphine two years after being treated.

The physical distress attending withdrawal may be diminished by frequent purgation with sodium sulphate and baths, including light baths. Another good adjuvant is sparteine sulphate in hypodermic injections—especially during the last few days of withdrawal and after its completion. For sedative and hypnotic purposes the author uses ammonium valerate, bromides, and veronal in moderate doses, but only when the patient is really suffering.

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NEW YORK, SATURDAY, FEBRUARY 22, 1913.

**ANAPHYLATOXINES AND ENDOTOXINES
OF THE TYPHOID BACILLUS.**

The existence of preformed poisonous substances in the cell bodies of bacteria has long been considered a satisfactory explanation of the toxic phenomena witnessed in various infections, especially typhoid fever and cholera. There have, nevertheless, remained a number of diseases, such as those caused by anthrax bacilli, streptococci, or staphylococci, in which this, the endotoxine theory of Pfeiffer, has proved totally inadequate by reason of the fact that no toxic substances could be obtained from the bodies of these organisms. Recent work by Friedemann and Friedberger has led to a suspicion that the assumption of specific endotoxins in any of the bacteria is quite unessential to a comprehension of bacterial toxemias in general. These investigators have shown that by treating cells and bacteria of various kinds with specific antibody and complement, nonspecific acutely toxic substances are produced. To these the term "anaphylatoxines"—owing to the virulency of their effects upon injection into experimental animals—has been applied.

In the February issue of the *Journal of Experimental Medicine*, Hans Zinsser, of Stanford University, records the results of a study of this problem with special reference to the typhoid bacillus.

Not only were the findings of previous experimenters confirmed, but it was ascertained, in addition, that exposure of the bacilli to blood serum for as long as fifteen hours at 37.5° C., instead of destroying the anaphylatoxines once formed, yielded a higher degree of toxicity than after shorter periods of exposure. It became apparent that a complement action of considerable vigor is required to obtain from the typhoid organism any appreciable yield of anaphylatoxine, and that the poison, once formed, is more stable than that produced from other organisms. All this leads Zinsser to suggest that the conditions prevailing in the body infected with typhoid germs are, at the height of the disease, ideal for anaphylatoxine production, since vigorously sensitized bacilli in large numbers are under the prolonged influence of considerable quantities of complement. An anaphylatoxine thus appears to play an important rôle in typhoid toxemia.

In his experiments with the so called "endotoxines" or preformed toxic bodies in typhoid bacilli, the author found that the conditions produced by the injection of extracts and filtrates of the bacillus—diarrhea, hemorrhages into the serous surfaces and large intestine, and protracted symptoms—differed considerably from the acute illness with rapid death or recovery caused by anaphylatoxine poisoning. He nevertheless feels that the participation of endotoxines in typhoid toxemia has not been proved, and believes it not improbable that all the phenomena witnessed represent solely a protracted or subacute state of anaphylatoxine poisoning.

The important bearing of these studies upon the pathogenesis of typhoid fever and its complications can hardly be overestimated. They suggest also that in certain toxemias the very immunizing process instead of protecting the organism, tends to aggravate the morbid phenomena—an additional plea to the multitude in favor of preventive medicine.

A FAIRY TALE OF SCIENCE.

The moving picture camera has been catering superbly to one of mankind's most vital needs—that of being entertained. It has become as well an important factor in the teaching of physiology, of disease prevention, and of sanitation; while its most recent usefulness is in the reproduction of phases of biology. Plant and insect life are amazingly reproduced; a flower is seen developing from seed to blossom, all in exquisite coloring; there is a moving picture of a chicken hatching from an egg; there is a cinematograph showing the evolution of a butterfly from a caterpillar, even to its emergence from the chrysalis.

But physicians will be especially interested in

the representation of microscopic and ultramicroscopic life. Dr. J. Comandon has, by a combination of the microscope and the moving picture camera, demonstrated the venous flow in a tadpole's tail; he has photographed phagocytosis, which phenomenon is shown with "all the realism of a dog fight." Bacteria live, move, and have their being in the midst of normal cells; spirochetes unroll their spirals, move wavingly along, hide behind blood cells, screw their tails around one another, and separate but to join again; trypanosomes dart hither and thither, spreading their undulating membrane, tossing about the erythrocytes, while leucocytes remain staunchly in position.

Under the ultramicroscope erythrocytes look like bright rings. One sees the brilliant granules of which the leucocytes are composed and among them the shadowy outlines of the many lobed nucleus; these granules, it seems, do not appear in mononuclear leucocytes. Platelets or blood dust particles one inch in diameter, especially numerous during fat digestion, are shown to exhibit Brownian movements.

The leucocytic property of throwing bacteria-agglutinating antibodies out into the serum is demonstrated; spirochetes in the blood of a fowl suffering from *Spirocheta gallinarum* first form strings, then star shaped groups, finally large clumps, one or more leucocytes forming the centre—until no spirochete is seen to move about by itself. And erythrocytes (which in the fowl are normally egg shaped and well defined) become pale, with indistinct circumference, while *pari passu* the nuclei become clearly seen; the spirochetes have been seen inside such hemolyzed cells, having entered perhaps through a tear in the external membrane. The other leucocytic property of pseudopod extension and bacterium digestion is seen in a film showing newt's blood; first the cell wall juts out, forming what appears like a clear bladder, into which the granules begin to pour; then, when this bladder becomes filled, the now emptied half contracts until the whole is again rounded. This process of locomotion is repeated until bacteria or degenerated cells are reached, when phagocytosis takes place.

NECESSITY FOR EXPLICIT DIRECTIONS ON PRESCRIPTIONS AND LABELS.

A death resulted recently in Pittsburgh because a drug clerk dispensed lysol instead of the laxol prescribed. In commenting on this case the *American Druggist* points out as a contributing factor to the error the lack of any directions for taking. The prescription, we are told, bore only the words "take as directed." The dispenser,

therefore, had no clue to the use to which the remedy was to be put nor to the quantity which was to be taken. The ordinary dose of laxol is from one to two tablespoonfuls. Lysol is a powerful and toxic disinfectant, not used internally. Had the prescriber written "two tablespoonfuls before breakfast," or other explicit directions, lysol would never have been dispensed, for any prescription clerk would recognize the fact that such directions could not apply to lysol. It is highly important that the directions for taking be written out in full on the prescription. This not only acts as a check on possible mistakes as to identity, but would frequently prevent misunderstandings as to quantities desired. The only excuse for failure to write the directions is lack of time, or, in some few cases, lack of space on the label, but even in these latter cases directions can be written in a condensed form and amplified verbally. Aside from the safeguard against error in dispensing furnished by written directions, their presence on the label would obviate the possible misunderstanding of verbal directions and forgetfulness on the part of nurse or patient. It frequently happens, moreover, that the nurse or orderly in charge of the patient is changed from time to time, and in this case verbal directions would have to be transmitted through another person, thus doubling the opportunities of misunderstanding. There is no adequate excuse for not writing out in full the directions on a prescription, and failure to do so may vitally involve the welfare of the patient.

THE ETIOLOGY OF BLACKWATER FEVER.

Mr. W. M. Graham, director of the Medical Research Institute at Lagos, has compiled a very valuable report on blackwater fever which was published only lately by the South Nigerian government. As to its etiology, the author says that it is unknown, but he believes that the observations made by him during many years of tropical service might be useful in elucidating the point. Of the numerous hypotheses he selects four which he deems important enough to discuss: 1. Blackwater is simply an attack of pernicious malarial fever with bilious and hemoglobinuric symptoms. This statement he proves to be untenable. 2. Blackwater fever is induced by quinine intoxicants. Doctor Graham thinks that there must be some additional factor which produces along with quinine hemoglobinuria. 3. An unstable condition of the blood is produced by repeated or badly treated attacks of malarial fever and once this condition obtains a dose of quinine determines hemolysis, which again produces hemoglobinuria. This is at present apparently the favored hypothesis, but the author shows that it too is at fault. 4. Blackwater fever is a specific disease caused by infection with a specific organism. The author discusses this point at great length without coming to a definite conclusion; he even speaks of

possible contributory factors, such as venereal disease, diet, alcohol, fat, etc.

The etiology of blackwater fever is therefore shrouded in absolute obscurity, and as long as post mortem examinations cannot be made the rule, a proper answer will not be obtained. Doctor Graham proposes a certain schedule which would make recorded observations uniform and would thus greatly assist in researches concerning a disease which has become so important in tropical districts.

THE POSSIBILITY OF CURING TABES.

Grand-Clément, of Lyons, has a communication in *Journal de médecine de Paris* for January 18, 1913, in which he states that, encouraged by the report of two successful cases, he is ready to advance a theory that tabes dorsalis is curable if recognized sufficiently early. Considering tabes to be always a sequel of syphilis, usually of a mild attack not vigorously treated, he attributes its intractability to the continued action of the poison on a nervous system gradually becoming more and more feeble with age. Of the cases cured one was under his care, the other was reported by Beard, of Angoulême, in *Revue internationale d'hygiène et de thérapeutique oculaires*. Both occurred in young men and were recognized by ocular symptoms. His case was cured by persistent mercurial inunctions, Beard's by three injections of salvarsan.

The ocular symptoms, frequently pretabetic, which demand the immediate attention of the therapist, if he hopes for success, are: Transient paralysis of the muscles or motor nerves of the eye; loss of pupillary reflex to light; miosis with irregularity of the pupil; pupillary irregularity with ptosis of one eyelid (of grave prognostic significance); progressive atrophy of the optic papilla. Above all, however, Grand-Clément emphasizes the occurrence of a monocular mydriasis, which often precedes the paresis by several years, is of serious import, and demands rigorous treatment by a combination of salvarsan, mercury, and potassium iodide.

AZOTURIC PROPERTIES OF SQUILL.

A. Pic and S. Bonnamour have ascertained that squill, while increasing the amount of urine excreted, favors especially the elimination of urea. It is, therefore, particularly indicated in nephritis where there is retention of an excess of nitrogen. They publish their observations in the *Presse médicale* for December 18, 1912. Accordingly, its administration should no longer be empiric—in all cases of dropsy—but should be based upon an examination of the urine for signs of urea retention. The best form to use is powdered squill, given in cachets of 0.15 gramme each, of which three or four are exhibited daily; the total amount may be increased to as much as 0.8 gramme a day. No harmful effect on the renal parenchyma was observed by the authors, and the albuminuria either remained stationary or was diminished. Where urea and chlorine retention coexist, squill and theobromine should be given together; here the addition of the squill will remove

the edema where theobromine alone may fail. In dropsy of cardiac origin, urea retention is in certain cases the predominant condition; here the action of squill will supplement the cardiovascular and chlorine eliminating action of digitalis. In the normal subject squill causes a much greater increase in the urea elimination than in the amount of urine. The effects of squill are ascribed by the authors to a selective action on the renal secreting cells.

SURGERY IN THE BALKAN WAR.

The Vienna correspondent of *Semaine médicale* in the issue of that journal for February 5, 1913, reports the comments of von Frisch and Clairmont at a meeting of a Viennese medical society, on their experiences at Sophia, Yamboli, and other points, in the treatment of wounded Bulgarian soldiers. It was interesting that these men withstood anesthesia admirably, a fact attributed to their customary abstinence from alcohol up to the age of fifty years. The operations on aneurysms were notably successful, partly because the surgeons were careful to wait till collateral circulation had become thoroughly established. Water was scarce, and the operators wore rubber gloves because they could not wash their hands. Infection, much of it from *Bacillus pyocyaneus*, was the greatest danger, and fractures of the skull were always treated as if they were infected. Every soldier should be provided with a first aid outfit to cover a head wound at the first available opportunity. Surgeons intending to volunteer should be thoroughly familiar with the rational treatment of wounds. Apparently the amateur nurses had given a good deal of trouble from their incompetence, and Clairmont was urgent in insisting on a supply of carefully trained nurses and orderlies.

HOSPITAL RELIEF FOR THE COUNTRY.

Any one who has paid attention to the sanitary conditions of the rural districts in many of our States must have been seriously impressed with the fact that there are many thousands of men, women, and children who suffer from preventable pain, but who cannot be reached under the present condition by medical advice. The betterment of this condition and the solving of this question have been discussed for a number of years. Professor C. Wardell Stiles, of the United States Public Health Service, publishes an interesting essay on the question in the *Public Health Reports* for January 31, 1913. His article is made valuable through his personal experience. He thinks the most feasible method to solve the problem would be a hospital train to make short trips in such localities as are not to-day supplied with specialists on the eye, ear, nose, and throat, and in gynecology. The strain upon the physicians attending such train would be, indeed, very considerable, but the good derived from it would repay such arduous work. The train could be sidetracked at certain remote stations, there to serve as an outpatient dispensary.

ETIOLOGY OF TUBERCULOUS INFECTION.

According to *Presse médicale* for January 15, 1913, A. Calmette and C. Guérin presented at a recent meeting of the Académie des sciences a report on some experimental researches they had made which showed that, under conditions of natural contagion, tuberculosis was first of all a generalized infection of the lymphatic system, which condition was followed only at a considerable interval by the appearance of lesions. Cohnheim's law, or the law of lymphatic reactions, which is constantly invoked to support the theory of infection by inhalation, does not hold under conditions of natural infection such as obtain, for example, in an infected stable. This natural infection produces, first, general disease of the lymphatic system, which may, but not always, become localized, create tubercles, and so develop into lesions visible to the naked eye. The authors aver, therefore, that tuberculosis presents as to its pathogeny the closest analogy with glanders, the intestinal origin of which has never been denied.

UNUSUAL CASE OF SITUS VISCERUM INVERSUS.

According to *Presse médicale* for January 29, 1913, Podevin and Dufour presented to the Paris Société de psychiatrie on January 23d a case of complete inversion of the viscera in a woman, aged forty-two years. She had presented herself complaining of severe pain in the left side, and examination disclosed that the appendix was on the left, further investigation showing that all the other viscera were similarly inverted. A curious exception to the rule in these cases was that the woman was not left handed.

News Items.

Obituary Note.—Mr. Joseph V. Standish, clerk of the University and Bellevue Hospital Medical College, died at his home in New York on February 10th, of angina pectoris. During the fifty years that he served as clerk of the college he endeared himself to thousands of students by his cheerful and encouraging ways. The funeral services from St. Agnes's Church, on Wednesday, February 12th, were largely attended by the faculty, students, and graduates of the college.

Manhattan Medical Society.—Professor Jacques Loeb, of the Rockefeller Institute, will give a lecture before this society on Friday evening, February 28th, on Some Recent Experiments on Artificial Pathogenesis. The meeting will be held in the Würzburger Hofbrau House, Broadway and Eighty-third Street. The officers of the society are: Dr. Benjamin T. Tilton, president; Dr. William H. Stewart, vice-president; Dr. Harold Hays, secretary; Dr. Albion R. Carman, treasurer.

Lodge Meeting of Medical Freemasons to be held in London in Connection with the International Congress of Medicine.—The Committee of Representatives of the Medical Lodges of Freemasons in London has issued an announcement that a lodge meeting of freemasons who are members of the International Congress of Medicine will be held on Monday, August 11, 1913, in the Grand Temple at Freemasons' Hall, Great Queen Street, W. C., London. Lord Amthill will open the lodge at 5 p. m., and will close it at 6 p. m. A reception will be held at 4 p. m. in the Connaught Rooms, adjoining the hall. The committee hopes that all who wish to be present will communicate with the Grand Secretary of their own jurisdiction as soon as possible, in order that suitable arrangements may be made.

The Harvey Lectures.—The seventh lecture in the course will be given on Saturday evening, March 1st, at the New York Academy of Medicine, by Dr. Edward G. Conklin, professor of biology in Princeton University, his subject being the Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence, and Rejuvenescence.

A Testimonial Banquet to the President of Temple University.—Dr. Russell H. Conwell, president of Temple University, Philadelphia, was the guest of honor at a banquet in the Hotel Walton on the evening of February 13th, given in honor of his seventieth birthday. The testimonial was given under the auspices of a citizens' committee of thirty-five in recognition of Doctor Conwell's work in the upbuilding of Temple University and of the Samaritan and Garretson Hospitals. Nearly five hundred persons attended the dinner, among them being prominent members of the State legislature, graduates of the university, and leaders in religion, education, and finance in the city. City Solicitor Ryan was toastmaster.

Homeopathic Medical Society of the State of New York.—At the sixty-first annual meeting of this society, held in Albany last week, the following officers were elected: President, Dr. B. W. Sherwood, of Syracuse; secretary, Dr. Bert B. Clark, of New York; treasurer, Dr. Reeve B. Howland, of Elmira; necrologist, Dr. John L. Moffatt, of Ithaca. The society adopted a resolution recommending the reappointment of Dr. Eugene H. Porter as State Commissioner of Health. The association also amended its constitution so that it may hold its annual meeting in the future on the second Tuesday in April at any place designated by the executive committee; heretofore these meetings have been held in Albany, on the second Tuesday in February.

The Work of the German Hospital.—Reports submitted at the annual meeting of the German Hospital and Dispensary, held on February 17th, showed that 48,228 patients received the benefits of the institution during the year. Of this number 6,935 were treated in the hospital department, receiving 80,040 days of care. In the dispensary department 106,849 consultations and treatments were given to accepted applicants. The medical staff comprises about 140 physicians. The institution is nonsectarian and makes no distinction as to race, nationality, or creed. The hospital and dispensary maintains a training school for nurses and has at present more than eighty pupils. The school is one of the oldest in the United States, having passed the twenty-sixth year of its existence.

Changes in the Faculty of Tufts Medical School.—Important changes have been announced in the faculty of Tufts Medical School, by which two professors have been made professors emeritus, and five men have been advanced to full professorships. The two professors who have retired from active service are Dr. Morton Prince, who has been professor of neurology in the institution for several years, and Dr. George Hamlin Washburn, professor of obstetrics. The five men advanced are: Dr. John Jenks Thomas, who is appointed professor of neurology; Dr. Alfred William Balch, who is made professor of chemical pathology and toxicology; Dr. Stephen Rushmore, who becomes professor of gynecology, Dr. Leo Victor Friedman, who has been appointed assistant professor of obstetrics, and Dr. Elmer Walter Barron, who becomes assistant professor of children's diseases.

Federation of State Medical Boards.—The annual convention of this federation will be held in the Congress Hotel, Chicago, on Tuesday, February 25th. It is only by harmonious and united effort of all boards that the best results may be obtained; they are now as never before in position to give needed assistance to medical colleges; it therefore behooves the boards officially to uphold the good colleges. Dr. George H. Matson, State House, Columbus, Ohio, is secretary-treasurer of the federation, and the other officers are as follows: Dr. Arthur B. Brown, of New Orleans, president; Dr. Charles H. Cook, of Natick, Mass., and Dr. P. H. Tatman, of Eureka Springs, Ark., vice-presidents. The address of the president will open the programme promptly at 9 a. m. Among the subjects to be discussed are Standards of Preliminary and Medical Education, Rules and Regulations Governing Examinations, Universal Reciprocity, Methods of State Board Record Keeping, Qualifications of Examiners, and What Fee Shall be Charged for Examinations.

The Epidemic of Measles in Pittsburgh.—Surgeon Stoner, of the Public Health Service, reported by telegraph from Pittsburgh, February 8, 1913, that during the week ended February 1, 1913, there had been reported in Pittsburgh 376 cases of measles, with 5 deaths, making totals of 4,031 cases and 62 deaths since the beginning of the outbreak, November 1, 1912.

An English Speaking Conference on Infant Mortality.—The National Association for the Prevention of Infant Mortality and the Welfare of Infancy, will hold a conference in Caxton Hall, Westminster, England, on August 4 and 5, 1913, under the patronage of the King and Queen. The work of the conference has been divided into two sections, administrative and medical, which will sit simultaneously. A provisional programme of subjects to be discussed has been issued, those for the administrative section being the Responsibility of Central and Local Authorities in the Matter of Infant and Child Hygiene, and the Administrative Control of the Milk Supply. On Monday, August 4th, the morning session of the Medical Section will be devoted to discussing the Necessity for Special Education in Infant Hygiene, and the afternoon session to Medical Milk Problems. There will be but one session of the Medical Section on Tuesday, in the morning, and the subject to be discussed is Antenatal Hygiene. The Hon. John Burns is president of the association; Sir Thomas Barlow, president of the Royal College of Physicians, is chairman of the Executive Committee; Sir Lauder Brunton, M.D., and Councillor W. F. Anderson, D.L., are vice-chairmen, and Alderman Benjamin Broadbent is acting vice-chairman. All who are interested in this conference and desire to become members of the association should communicate with the secretary, Miss Halford, 4 Tavistock Square, London, W. C.

Personal.—The degree of LL. D. was conferred upon Dr. William M. Polk, president of the New York Academy of Medicine, and Dr. J. A. Witherspoon, of Nashville, Tenn., president-elect of the American Medical Association, by the University of Georgia, on the occasion of the dedication of the new building of the medical department on January 29th.

Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, winner of the Nobel Prize in Medicine, has been appointed a Chevalier of the Legion of Honor by the French Government. Doctor Carrel has also been appointed corresponding member of the French Academy of Medicine.

Dr. S. Weir Mitchell, of Philadelphia, celebrated his eighty-fourth birthday on Saturday, February 15th. He is said to be in excellent health, and is still engaged in active practice, as well as in literary and scientific work.

Dr. John B. Deaver, of Philadelphia, was the guest of honor at a dinner given on the evening of February 14th by the Deaver Medical Society. He was presented with a silver loving cup, Dr. Stanley P. Reimann, president of the society, making the presentation. Dr. George Ross was toastmaster, and addresses were made by Dr. Henry Lloyd and Dr. Lewis Ziegler.

Dr. William H. Welch, professor of pathology at Johns Hopkins University, has been appointed chairman of an administrative committee, composed of members of the faculty, to conduct the affairs of the university until a president is appointed.

Dr. J. W. W. Stephens, lecturer in tropical diseases at the London School of Tropical Medicine, has been appointed to the chair of Tropical Hygiene, made vacant by the recent resignation of Sir Ronald Ross, who has gone to London.

Dr. Roswell Park, of Buffalo, N. Y., lieutenant in the Medical Reserve Corps of the United States Army, has been assigned to active duty at Washington, D. C., in order to deliver two lectures on surgery at the Army Medical School. According to preliminary reports of the midterm examinations, the present class is an exceptionally strong one.

Dr. Theodore B. Sachs was elected president of the Chicago Tuberculosis Institute, at the recent annual meeting of the organization, succeeding Dr. Henry B. Favill, who resigned. Dr. Frank Billings and Dr. Robert N. Babcock were elected vice-presidents.

Dr. Samuel C. Stanton, of Chicago, has been appointed surgeon general of the Illinois National Guard, with the rank of colonel.

The Late Dr. Lewis Steinbach.—The staff of Mount Sinai Hospital, Philadelphia, has sent to the widow of Dr. Lewis Steinbach the following letter of sympathy and condolence:

The staff of the Mount Sinai Hospital take this means of expressing to you and your family their deep grief and sense of personal loss at the sudden removal of their beloved and distinguished colleague, Dr. Lewis Steinbach, and to extend to you their sincerest sympathy. Doctor Steinbach's life represented continual self sacrifice and perfect self forgetfulness in his service and devotion to the poor and sick to whose appeal he was ever ready to respond. His conscientiousness and energy and the manner in which he was enabled to surround himself with a host of loving and loyal clientele and friends were an inspiration to us all. His presence will be missed; but his influence for good in the example of his life will live and continue to grow.

May this be a solace to you and yours, that in his memory you have an invaluable treasure that must remain with you forever.

HARRY LOWENBURG, M.D.,
Representing the staff.

Gifts and Bequests to Hospitals.—The will of Dr. Orville Horwitz, late emeritus professor of genitourinary surgery in Jefferson Medical College, Philadelphia, contains a bequest of \$15,000 to the Jefferson Hospital, to be used for the establishment of three free beds in the institution, to be placed in the genitourinary, the surgical, and the gynecological wards, respectively.

Announcement is made that the net proceeds from the German Charity Ball this year amount to \$10,000, which has been distributed as follows: German Hospital and Dispensary, \$2,000; St. Mark's Hospital, \$1,150; St. Francis's Hospital, \$1,150; German Poliklinik, \$1,150; German Society, \$1,150; Isabella Home, \$900; Wartburg Orphan School, \$900; Deutscher Frauen Verein, \$800; West Side German Dispensary, \$800.

The Sanatorium for Hebrew Children, at Rockaway Park, N. Y., has received \$20,000 from the executors of the estate of Caroline Neustaedter, in payment of her special bequest to that institution.

The will of John M. Lohse, who died in New York in April, contained bequests of \$10,000 to the Presbyterian Hospital, \$8,000 to the Mount Vernon Hospital, \$15,000 to the German Hospital and Dispensary, and \$5,000 to the Fritz Reuter Home, at Union Hill, N. J.

Announcement is made that Mr. Elizabeth McCauley has contributed \$5,000 to the Methodist Episcopal Hospital, of Philadelphia, to endow a bed in the institution in memory of her son.

Assistant in Experimental Therapeutics Wanted in the Philippine Service.—The United States Civil Service Commission announces an examination for assistant in experimental therapeutics, Philippine Service, for men only. The position to be filled is that of research assistant in experimental therapeutics in the Bureau of Science, Manila, at a salary of \$2,000 a year. This position offers to the ambitious and capable physician a wide field for experimental therapeutic work. The Bureau of Science possesses one of the largest and most favorably known research laboratories in existence and is in the immediate vicinity of the Philippine General Hospital, which is probably the best institution of its kind in the Eastern Hemisphere. In view of the excellent opportunities presented qualified persons are urged to enter this examination. It will not be necessary for applicants to appear at any place for examination. Their eligibility will be determined upon the evidence furnished in connection with application and examination Form B. I. A. 2, concerning their training and the work which they have accomplished. Applicants must be graduates in medicine, and in addition must show at least one year's postgraduate experience in conducting laboratory research work in experimental therapeutics, or, as equivalent to the year's work, they may submit copies of publications prepared by them, evidencing their ability to carry on original experimental therapeutic work. A person is desired who is especially qualified in research, and it is stated that, for one who is satisfactory, the prospects of promotion are excellent. Statements as to training, experience, and fitness are accepted subject to verification. Applicants must have reached their eighteenth but not their fortieth birthday on the date of the examination. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on March 10, 1913.

Pith of Progressive Literature.

MEDIZINISCHE KLINIK.

December 1, 1912.

Fifteen Years' Experience with Collargol.—Fehde has learned to appreciate the prophylactic and therapeutic value of intravenous injections of collargol. It is especially valuable in puerperal sepsis, typhoid, angina, rheumatic diseases, and particularly in the endocarditis of childhood. The fever in mixed tuberculous infections was rapidly and favorably influenced when daily intravenous injection of collargol and hetol were given alternately. When larger doses are given from the start one must be prepared for a marked reaction, manifesting headache, vomiting, and rise of temperature; therefore it is advisable to begin with small doses, e. g., 0.05 gramme. One injection is not sufficient. In severe cases of sepsis three injections are to be given daily. Five c. c. of a two per cent. solution is injected into the lumen of a vein by means of a very fine cannula so that none of the solution is deposited outside of the vein. In the latter instance a severe inflammation of the tissues results. The author uses the original preparation of collargol to the exclusion of all others.

Liquid Paraffin in the Treatment of Wounds.—Auerbach uses liquid paraffin on the skin surrounding wounds to protect it from eczema. It is sufficient thoroughly to paint the circumference of the wound over a wide area. This method also prevents the bandages from sticking to the wound and even though they may be soaked with blood they almost fall off by themselves.

December 8, 1912.

Codeonal.—Oy says that codeonal is a pleasant and harmless hypnotic which is especially recommended for the old and decrepit with a marked degree of restlessness or a slight cough. Its sedative action is insufficient in cases of marked restlessness, delirium, and excited states. Habit formation from prolonged administration was not noticed.

December 15, 1912.

Respiratory Disturbances in Uremia.—J. Pal asserts that the most important forms are: 1. The subacute which are closely related to the uremia itself; loud and deep breathing and Cheyne-Stokes phenomenon. 2. The acute forms are related to the toxemias in close relation to the cardiovascular changes; the paroxysmal cardiac high tension dyspnea. They are both products of the acute high tension. The cardiac form occurs when the ventricle becomes relatively insufficient on account of the high tension. The other is the result of an excessively high pressure tension in a heart capable of working. All the respiratory phenomena occurring in the course of uremia are not absolutely uremic phenomena. They should therefore be designated as uremic only when the other related symptoms are present. The prognosis in the first group is less favorable. The therapeutic measures must be aimed at the general underlying cause, therefore the prognosis for its removal is less. The symptoms of the second group are very stormy; they are in the main mechanical factors and can be

removed only by corresponding measures, such as venesection, lumbar puncture, and medication lowering blood pressure.

December 22, 1912.

Diagnosis of Acute Poliomyelitis.—Starck says that we must accustom ourselves to keep the possibilities of a poliomyelitis more frequently in view than we have up to the present time. Only then will it be possible to detect the disease in its initial stages. Any case of acute febrile disease, especially in children, which is characterized by a general hyperesthesia of the skin with a tendency to profuse sweating, absence of leucocytosis, weakness, and decrease of the muscle tonus in certain muscle groups with diminished tendon reflexes should strongly arouse suspicion.

December 29, 1912.

Acute Hemorrhagic Pancreatitis.—Hellwig reports two fatal cases. When the patients with a tendency to obesity who have repeatedly had gall-stone colic are suddenly attacked with pain in the upper part of the abdomen and collapse, a diagnosis of acute hemorrhagic pancreatitis should be thought of. The best thing to do is to perform laparotomy immediately and pack the pancreas.

ZENTRALBLATT FÜR CHIRURGIE.

January 25, 1913.

X Ray Treatment of Actinomycosis.—Richard Levy reports two cases in which actinomycosis was apparently cured by x irradiation. In the first case an operation had been performed and the patient was also taking iodide, so the result could not be ascribed with certainty to the rays, but the secretion stopped immediately and the fistula closed within a few days after the first exposure. The second patient had been operated on repeatedly, undergoing about a year previously a partial resection of the upper jaw. The infiltrate disappeared completely under x ray treatment alone and the fistula closed. No recurrence had appeared in either case at the end of six months.

ZENTRALBLATT FÜR INNERE MEDIZIN.

January 25, 1913.

Electroangiograms.—A. Bittorf was able to demonstrate active contractions of the femoral artery at each pulse beat in dogs, by connecting Huth's electrocardiograph with the exposed and elevated artery through nonpolarizable electrodes. In man, similar attempts, without exposure of the vessel, were unsuccessful, except in a single case of chronic nephritis, in which a distinct angiogram was obtained.

PARIS MEDICAL.

February 1, 1913.

So Called Specific Therapy in Tuberculosis.—Léon Bernard recalls that three kinds of so called specific agents are used to combat tuberculosis, the tuberculins, which are supposed to confer an active immunity, the antituberculous serums, used to give a passive immunity, and the *Immun Körper* of Carl Spengler. Passing these rapidly in review the writer concludes that none of them has any special value. Where their use has been followed by amelioration, the case was probably one of spontaneous cure.

Tuberculosis in French Colleges.—Raoul Brunon takes the college authorities of France severely to task for their negligence of the students' health. The young men do not bathe enough, exercise sufficiently, nor pass enough time out of doors, while their work is so exacting as to deprive them of proper hours of sleep; "too long hours of study, too many note books, too many lessons, too many appeals to the memory, too many compositions," form part of Brunon's indictment. Speaking of other countries, he expresses great admiration for the grand scale on which the college campus and recreation ground are planned in the United States.

Recognition of Tuberculosis in the Infant.—Ribadeau Dumas and Robert Debré lay the greatest stress on von Pirquet's skin reaction in the early diagnosis of tuberculosis; second come the osseous and cutaneous lesions, the loss of weight, fever, etc.; last, but also important is the x ray.

PRESSE MÉDICALE.

January 18, 1913.

Treatment of Fracture of Ulna at Its Upper Third, with Dislocation of Upper End of Radius.—J. Abadie urges the abandonment of simple arthrotomy or excision of a portion of the radius in this condition, and advises treatment as follows: In recent cases reduction without operation should first be attempted. The joint should be immobilized in the acutely flexed position and two radiograms from different aspects taken. If the radial head is not in place, or if there is overlapping or angular displacement of the ulna, which would probably later hinder supination and pronation, operation after at least a week has elapsed is indicated. The ulna should first be fixed in proper position, preferably with Lambotte's plate, and the head of the radius then replaced *de visu*. In cases already of long standing, simple arthrotomy is useless because the irreducibility is bony in origin, the ulna having become too short for the radius. An osteotomy of the ulna should first be done, and this bone fixed in its normal condition, if this is possible; if not, the radius should be reduced primarily, and the ulna then sutured in a corresponding position. Excision of the radial head should be done only if reduction has proved impossible. If there has been rectilinear consolidation of the ulna—almost always, however, with some shortening—a choice will have to be made between oblique ulnar osteotomy with open reduction of the radius, and primary excision of the radial head. This point can only be settled by further experience, but other things being equal, the former procedure seems preferable, since the normal skeletal conditions are preserved.

Relationship between Seroanaphylactic Phenomena and Certain Forms of Tuberculosis.—P. Courmont reports three cases in which severe toxic manifestations followed five injections of five c. c. of Marmorek's antituberculous serum, the first dose in each instance being given by rectum and the remainder subcutaneously. All these patients had had tuberculosis at one apex, long since healed and remaining only as an area of fibrous induration; also a chronic rheumatoid condition of the extremities, of tuberculous origin, and a high agglutinating power of the serum. After mild local phenomena,

appearing soon after the injections, these cases all presented severe cutaneous and especially articular reactions, the latter progressing to hydrarthrosis with fever and loss of weight, the whole constituting a pseudorrheumatic fever. No similar phenomena had been observed in a large series of cases of tuberculosis in other forms previously treated. Their severity is attributed to the fact that patients with fibroid tuberculosis readily form antibodies, through the conflict of which with the specific antigens injected anaphylactic accidents may arise. Such patients also react strongly to tuberculin.

January 22, 1913.

Treatment of Fractures of Patella and of Olecranon by Subcutaneous Suture.—Chaput considers operative treatment indicated in patellar fractures where there is separation to the extent of two cm. and the lateral aponeurotic expansions are torn sufficiently to admit the tip of the index finger. He operates subcutaneously, after an interval of three or four days, during which the skin of the knee is carefully cleansed and covered with aseptic dressings. Three small stab wounds are made through the skin into each lateral expansion; catgut is passed from the uppermost to the lowest opening with a curved needle; the ends are then returned beneath the skin and both brought out through the central opening. The fibrous covering of the patella is next similarly dealt with, U shaped sutures introduced through four stabs and knotted on one side being employed. Finally the fragments are firmly drawn together by an assistant and the sutures tied and cut flush with the skin, the knots having sunk in of themselves. Any accumulations of blood are evacuated either through the stabs or by aspiration. The good results and freedom from infection secured by this method in patellar fractures were also obtained in two cases of fracture of the olecranon similarly treated.

SEMAINE MÉDICALE.

January 22, 1913.

Acute Circulatory Disturbance due to Sudden Vagal Hypertonia.—J. Schwartzmann reports four cases in which a sudden drop in the pulse rate, with partial syncope, was observed to take place, in two instances during injections of salvarsan, and in the others during ordinary blood pressure estimations with the Riva-Rocci instrument. In all recovery soon took place. In the first two cases, in which the psychic factor could be ruled out, since the untoward phenomena appeared only at the close of the injection, the disturbance was attributed to a direct action of the drug on the pneumogastric centres; in the other patients, who complained of pain during the inflation of the blood pressure cuff, the bradycardia may have been reflex, likewise through the vagi.

SEMANA MÉDICA.

December 26, 1912.

New Treatment for Pneumonia.—Aquino reports the successful treatment of grippe, above all when complicated with pneumonia, with the salicylic preparations, by Doctor Boutchinskaja, a Russian. The treatment consists in a local application upon the affected parts of a solution composed of

ten grammes of salicylic acid in ninety per cent. alcohol and ten grammes of castor oil. These applications should be made three or four times in the twenty-four hours and cause only a slight erythema which the patient bears very well.

Ocular Symptoms Caused by the Affections of the Nose and Adjacent Sinus.—Gómez says that very often glasses are prescribed to relieve frontal cephalalgia which is later found to be caused by an affection of the ethmoid bone or of the frontal sinus. This happens because as yet the differential diagnosis between ocular cephalalgia and that caused by nasal affections has not been established. The cephalalgias caused by ocular disorders are bilateral, are not generally severe, do not cause nausea or vomiting, and are very often diurnal. They are, as a rule, frontal, temporal, or occipitofrontal. The vertical ones or those that invade the entire head are not always of ocular origin. The cephalalgia at the nucha are oculodynamic and are complicated with an imbalance of the ocular muscles. Other symptoms of ocular cephalalgia are pain and malaise, congestion of the palpebral conjunctiva, blepharitis, watering, etc., of the affected eye. The author says that cephalalgia may also be caused by vasoocular disorders.

January 2, 1913.

Serotherapy in Tetanus.—Bard says that antitetanic serum as a prophylactic medium for tetanus in man has been largely discussed, but the last word has not yet been written. Among surgical infections tetanus is the typical disease of intoxications; a specific microbe, Nicolaier's, when inoculated in a wound, secretes a toxine which poisons principally the nerve cells. The spores live for one or two hours in a temperature of 80° C., die in fifteen minutes in steam at 100° C., and in five minutes at 115° C. in the autoclave. Vaillard says that in the experimental antitetanic serotherapy it is not easy to prevent tetanus when the serum is applied after the toxine has penetrated. However, large doses of serum often have a good effect several hours after the toxine has been injected. Laboratory experiments show that tetanus occurs regardless of the preventive injection of the serum, when the spores are inoculated mixed with sand in Berzelius paper, because the phagocytes in this case cannot destroy the bacilli of Nicolaier.

Argon.—Delfino recalls that Lord Rayleigh and Sir William Ramsay, after a long series of laborious experiments, succeeded in separating this gas from other substances present in the atmosphere. The English chemists employed two methods to isolate the nitrogen of air and so found the new gas. One was the classic process of Cavendish, which is used to show the nitric acid composition, and which by submitting the air to the action of a series of electric discharges in presence of potash, gives to this substance the nitrous vapors which are formed, while the rest of the oxygen is absorbed by an alkaline pyrogallate. The rest of the gas which is not absorbed by the phosphorus or pyrogallic acid in an alkaline solution nor by alkalies, is constituted by the *argonides*, which are a mixture of argon, helium, neon, xenon, and krypton. The other process employed consists in causing oxygen to be absorbed by red hot copper and carrying the

residue upon a red hot tube which contains filings of magnesium, lithium, or calcium mixed with magnesium and lime. Argon seems to resemble nitrogen in having two different spectra, but in the latter one shows striped bands and the other bright lines, while in argon both show bright lines.

BRITISH MEDICAL JOURNAL.

February 1, 1913.

Exotic Flora of the Uterus in Relation to Fibroids and Cancer.—J. Bland-Sutton regards the condition of the uterus which has a submucous fibroid as much the same as that in the presence of retained fragments of placenta in a parturient woman. The same holds good even to a greater extent in the case of uterine cancer. Both conditions greatly favor the growth and development of exotic and pathogenic microorganisms, among which the most important are streptococci, staphylococci, pyocyanei, and colon bacilli. It is precisely these organisms which are to be found in the clots which form in the deep epigastric veins, the femoral, iliac, or ovarian veins. Bland-Sutton has found that the occurrence of postoperative pulmonary embolism is much more frequent as a result of hysterectomy for fibroids than for any other condition save for cancer. It is his contention that in these two conditions there is a far greater likelihood of there being a local infection in and about the uterus and vagina, and that from this it is almost certain that the operator's fingers and sutures must become contaminated, at least in certain cases. The contamination is transmitted to one or other of the sets of veins mentioned, either by manipulation or through the introduction of buried sutures. This latter he believes to be the most common mode of introduction of the germs which result in the formation of thrombi.

Varieties of Tuberculin in the Treatment of Tuberculosis.—Nathan Raw divides tuberculosis into two types: 1. Those lesions due to the human strain, including pulmonary and pleural, secondary tuberculous enteritis, laryngitis, and fistula in ano. 2. Those due to the bovine strain, including primary abdominal tuberculosis, adenitis, bone and joint disease, genitourinary, acute miliary, lupus, meningitis, and a small percentage of pulmonary tuberculosis. From the observation of over 6,000 patients in the last ten years, Raw states that it is rare to find lesions of the one type associated with those of the other in the same patient. He suggests that mild infection by the bovine type of bacillus will protect against subsequent infection by the human type and that it is most probable that a large number of people are thus immunized against pulmonary tuberculosis in after life by having been infected in early childhood by bovine bacilli in milk or food. As a result of his experience he contends that the lesions in the human body, due to the human strain of bacillus, are benefited more quickly and certainly if a tuberculin prepared from the bovine strain is used; and in all cases of pulmonary tuberculosis he now uses only bovine tuberculin. The opposite holds true with equal force, that is, that the bovine lesions in man are best treated by the administration of human tuberculin. Further advantages of bovine tuberculin are that it is less toxic and does not so readily cause reac-

tion, it is more easily tolerated, and it causes the bacilli to leave the sputum more quickly than does the human.

A Year's Experience of Dioradin in Surgical Tuberculosis.—Atkinson Stoney treated twenty-eight cases of surgical tuberculosis with dioradin and reports the following as his results: There were eleven apparent cures, in seven cases there was great improvement, in four there was some improvement, and in the remaining six there was no definite improvement. As the result of his extended trial he concludes: 1. Dioradin injections are not a certain cure for all cases of tuberculosis; in some cases they will produce a cure more rapidly and more certainly than any other treatment of which he has had experience. 2. Early cases of joint disease treated by injections combined with the ordinary measures of diet and hygiene will recover more rapidly and more surely than when the injections are not given. The same is probably true of glandular and other surgical affections. 3. In advanced cases with abscess formation, if injections are started before, or at the time the abscess is opened, it will usually heal rapidly, the tuberculosis process apparently comes to an end and a cure results in a large proportion of cases. 4. In those cases complicated by septic infection dioradin injections will generally reduce the temperature to normal, increase the appetite and weight, lessen the amount of discharge, and in some cases even bring about a cure.

LANCET.

February 1, 1913.

Treatment of Syphilis with Salvarsan.—Lancelot Kilroy gave a total of 2,147 injections to 1,000 patients and observed invaliding in only thirteen, no deaths, and only twenty-four clinical relapses. The relapses were chiefly among those who had received not more than two injections, while of sixty-eight cases in which three injections were administered, there was a relapse in only one.

New Growth and Inefficient Immunity.—Helen and Albert S. F. Gruenbaum find that in rats the presence of a hemolysophilic substance is associated with susceptibility to sarcoma. A similar substance also appears temporarily after the injection of some vaccines, and the susceptibility to sarcoma is then increased. The administration of certain immune bodies will cure sarcoma in rats and diminish new growth in man. Their experiments lead the Gruenbaums to the hypothesis that there are at least two factors concerned in the causation of new growth. One of these factors is general and variable, is the immediate cause, and is irritation, either chemical or physical. One of its forms may well be the action of parasites or their products. The specific factor or predisposing cause will be the result either of some derangement of function of the affected tissue or of the failure or aberration of some hormone produced by another tissue. Presupposing the existence of two definite substances, the absence of one may give overwhelming preponderance to the other, or a definite increase of the substance favorable to the new growth may mask that which is unfavorable. The temporary presence in rat experiments of the hemolytic substance during the negative phase of the opsonic index suggests

that this hemolysophilic substance may be an immature form of the substance which later becomes the immune body. The hypothesis given does not require the presence of a different and separate parasite or microorganism for each form of new growth, nor is it expected that generalized cancer can be induced in the absence of a general tissue susceptibility.

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

January, 1913.

Diagnosis, Prognosis, and Treatment of Cervical Abscesses of Aural Origin.—Deodato de Carli gives as the pathognomonic finding the fact that gentle pressure on the neck forces out pus from the external auditory canal or from some mastoid fistula. Prognosis is guarded, even in superficial abscesses; extremely so in lateral sinus thrombosis and perisinus abscesses. Untreated, these abscesses tend toward the mediastinum; they may spread via the lymphatics and may even end in the axilla or the back. Treatment should include mastoid operation, simple or radical, except when the mastoid is not involved, as in adenitis or abscesses about the pharynx. Used early, rest, hot applications, and antiseptics about the infected area may abort them. Carbolic injections, in three per cent. strength, into a lymphadenitis will at times arrest its development. After suppuration, incision (with or without mastoid operation, *v. supra*) must be done. Cauterization may supplement early free incisions in adenophlegmon. In lateral sinus or jugular suppuration, the vessels should be opened and ligated below the thrombus. Ligation of the jugular is done by incision about three inches long in a line running from the angle of the lower jaw parallel with the anterior border of the sternomastoid toward the clavicle, the patient's shoulders being raised, neck extended, and face turned toward the opposite side. Beneath the skin and superficial fascia the anterior border of the muscle is found, and by blunt dissection, the vascular packet is opened, the vein lying behind and opposite the artery. Double ligature is passed beneath the vein, which is then cut; the pus escapes or the thrombus is removed. The wound is allowed to close by second intention. Superficial cervical abscesses may be simply incised. Deep submastoid abscesses require removal of the mastoid tip. Lateral pharyngeal abscesses may result from extension from the neck, or may extend from the middle ear via the Eustachian tube. These should be opened externally, either premastoid or retromastoid. The premastoid method means incision along the lateral border of the muscle, and blunt dissection through the aponeurosis and past the great vessels (which are pushed toward the mesial aspect) to the involved peripharyngeal cellular tissue. By the retromastoid route, cutaneous incision, about two inches long, follows the posterior border two fingers' breadth below the mastoid tip, through the aponeurosis and retracting outward the muscles and great vessels, thus reaching the abscess. Retropharyngeal abscesses are best opened with the patient sitting upright, by a free incision half an inch long, made over the prominent part of the swelling, from below upward. The head is bent forward immediately following the incision to prevent inspiration of pus.

Suboccipital abscesses may be incised through the thickness of the neck down to the bone. In all these cases the point of most efficient drainage is to be selected for incising the abscess.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

January 1, 1913.

Experimental Kalaazar.—R. Row reports that of various animals experimented upon, only in *Maca-cus sinicus* and tame mice developed a generalized kalaazar infection with a minute dose of the virus. This was done by intraperitoneal injection. The parasites seemed to lose their virulence by passage through mice. Intracutaneous and subcutaneous injection in the monkey led only to a well defined localized lesion of the nature of a young fibroma, which led to no general infection or constitutional disturbance.

PRACTITIONER.

January, 1913.

Tuberculosis.—This number is devoted to the exclusive consideration of tuberculosis and forms a very good compendium of what is at present known concerning this disease. It contains thirty-seven different papers, many of them by well known writers, as well as a number of practical notes, which present the subject in all manner of aspects. In the introduction Sir T. Clifford Allbutt says: "I have read carefully all these articles; they are written by men who have a first hand and first rate conversance with the subject as a whole, and especially with the part of it which each has most intimately studied." These words point out the value of the papers more clearly than could be done by a long review, which is impossible. Allbutt reviews and discusses the various papers, calling attention particularly to points concerning which there is uncertainty of opinion, and to modern methods of treatment, in a manner that is peculiarly illuminating. Then follow the papers themselves, first on the bacteriology, pathology, and research, the ways in which tubercle bacilli enter and spread in the body, diagnosis including the x rays, treatment in the early stages, general, sanatorium, home, climatic, and dietetic treatment, treatment by graduated rest and exercise, the use and abuse of drugs, phosphorus metabolism, the pneumothorax treatment, continuous antiseptic inhalation, the opsonic method in relation to tuberculosis, surgical treatment, and two articles on tuberculin, one with special reference to dispensary treatment, the other as given at the Torquay dispensary. Then follow tuberculous diseases of bone and joints, the use of plaster of Paris in the treatment of disease of the spine, and the trypsin treatment of surgical tuberculosis; Dr. Wilhelm Baetzner, of Berlin, reports excellent curative effects of this treatment, digestion of fungoid masses, disappearance of tubercle bacilli, diminution of pain, and marked improvement of appetite. He accentuates the importance of using only a highly active preparation. His statements are based on the use of *injectio trypsin* (Fairchild), diluted with sterile salt solution in the proportion of two parts to ten. Disease of special organs are dealt with in papers on tuberculosis of the colon, rectum, and anus, of the stomach and intestines, of the urinary and genito-

urinary tract, of the larynx, of the ear, of the eye, the associations of tuberculosis with disorders of the nervous system, tuberculosis in children, and the treatment of localized tuberculous infections. Following these are papers on rain-bearing winds and the prevalence of tuberculosis, tuberculosis in Ireland, the education of the public in relation to the prevention of the disease, public health, first with reference to the housing problem, second with reference to sanatorium benefit, and finally one on pulmonary tuberculosis in relation to life insurance. These essays are all good, they cover all parts of the subject, and they overlap much less than is usual when such a collection is secured.

CHINA MEDICAL JOURNAL.

November, 1912.

Need for Physiological Standards in Clinical Research, with Special Reference to South China.

—G. Duncan Whyte gives much valuable information concerning the differences, anthropological, physiological, and pathological, between the Chinese and the Caucasian. The height of the Chinese, although of more interest to the anthropologist, is rarely of importance in diagnosis, though ankylostomiasis, achondroplasia, Mongolian imbecility, and myxedema suggest themselves as conditions associated with stunted growth. The average height of a thousand Chinese proved to be 5 feet 4.07 inches. The question of corpulence—the relation of height to weight—is of practical importance in the determination of any loss of flesh, as in phthisis. The average weight of a Caucasian for a height of five feet four inches is 160 pounds, while the Chinese average weight is only 116 pounds. Each inch of stature corresponds not to 2.5 or three pounds as in Caucasians, but to less than two pounds (twenty-eight to thirty-one ounces). The urine of the Chinese has three outstanding features, the large amount passed (1,800 c. c.), its low specific gravity (1.004 to 1.012), and the very small amount of nitrogen content (seventeen grammes). As to the gastric contents we find the percentage of hydrochloric acid is much the same as with Caucasians, but the total acidity is much less—a total acidity of thirty-five would be normal in a Japanese, while in a European it would indicate a deficiency. Passing down the alimentary canal to the sigmoid flexure we find the contents more bulky and less offensive than those of Europeans, but it is normal for those stools to contain the eggs of intestinal parasites (ninety-nine per cent. are thus infected). *Trichocephalus trichiuris* cannot be considered a common cause of appendicitis, for in China there are more individuals infected with this parasite and fewer cases of appendicitis. *Ascaris lumbricoides* is present in ninety per cent. of the hard working Chinese. *Opisthorchis sinensis* was found in forty per cent. of the healthy business men and students examined. *Distomum crassum*, found in two cases, produced no definite symptoms. *Ankylostomum duodenale* is often present without causing any of the symptoms of ankylostomiasis; it cannot be suspected of causing beriberi or kalaazar. All these parasites are to be regarded as normal inhabitants of a healthy native's intestinal tract. The blood examinations of the Chinese are indeed unique in results.

The average amount of hemoglobin is between seventy and eighty per cent.; some showed even ninety per cent. and this in spite of the presence of a few ankylostomes. The specific gravity of the blood of the Chinese is yet undetermined, although of practical importance in the treatment of cholera. The red cells vary from the European in amount. An excess of five million red cells to the c.mm. is frequently found and forms a striking contrast to the low hemoglobin figure. The suggestion is offered by the writer that because of the lack of hemoglobin smaller red cells are required so that a relatively larger surface is offered for the diffusion of oxygen and carbon dioxide. The consideration of the white cells brings us to the verge of the pathological. The presence of a certain degree of leucopenia and of a relatively high percentage of mononuclear cells associated with slight enlargement of the spleen and a moderately high temperature is suggestive of typhoid fever, but this blood picture is normal for any man with chronic enlargement of the spleen. Again, it is normal for a parasite infected patient (this includes ninety-nine per cent. of the Chinese) to show a high degree of eosinophilia. The blood pressure of the Chinese corresponds very closely with that of the European.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 6, 1913.

Circumscribed Epidemic of Diphtheria.—Herman M. Adler describes an epidemic of diphtheria that occurred in the Denver State Hospital, started by a patient admitted in a stuporous condition, who presented nothing unusual physically and was admitted with the provisional diagnosis of dementia præcox, catatonic form. After dealing with the incidents of the epidemic he thus summarizes his conclusions: A patient suffering with indefinite catatonic symptoms should be carefully examined for physical disease, even if the usual signs of acute disease, such as fever and pain, are lacking. A diphtheria bacillus may be causing active disturbance without local manifestations. A true diphtheria bacillus may be introduced into the wards of an institution for the insane and spread without causing clinical diphtheria among the patients. The diphtheria bacillus under these conditions maintains its virulence and is capable of causing clinical diphtheria. The diphtheria bacillus does not as a rule cause clinical diphtheria in insane patients. The attendants are liable to infection with true diphtheria and often present the clinical picture, although none of the patients in their charge are characteristically ill with the disease. Diphtheria antitoxine should be used freely, even in the absence of clinical diphtheria.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

February 8, 1913.

School Diseases.—Edwin O. Jordan admits that children of school age contract measles, scarlet fever, and diphtheria more frequently than older persons, but pertinently remarks that it may be because children of school age are more susceptible to infection rather than that school conditions favor their transmission. On the other hand, there are those who maintain that school attendance plays a

larger part, if not the chief part in the dissemination of infectious disease among groups of children of susceptible ages. While the plate, the common drinking cup, and the roller towel are becoming things of the past, there still remains the friendly exchange of pocket handkerchiefs, lip moistened lead pencils, chewing gum, and the like. Sneezing, coughing, or speaking give rise to a discharge of minute droplets of spray from mouth or nose, which may float about in the air for some minutes and can be borne by air currents to a distance of several feet. These air borne droplets are looked upon by some as the principal factors in the spread of tuberculosis. Increase in the number of associates must necessarily increase the chances of infection. Although for diphtheria there is sufficient evidence of infection through school attendance, we are yet uncertain as to the relative importance of this source. Knowledge of the mode of spread of scarlet fever and measles is still more uncertain, which shows the need of an extensive and searching investigation by competent experts. Without adequate knowledge of the channels of infection strength is wasted in misdirected effort. In preventing infection efficiency should mark our efforts, and methods should be devised to produce the maximum effect with the smallest amount of injury or disturbance to the normal relations of human life. We do not at present know to what extent the various influences of school attendance are factors in the dissemination of infectious diseases.

Methods of Water Purification for Large Cities.—Rudolph Hering's account of the methods of water purification for large cities assures us that this branch of public service has reached a stage of development at which it is possible to furnish healthful water supplies at reasonable cost, whether they are obtained from subterranean or from surface sources.

Developments in the Skin Grafting Operation for Cancer of the Breast.—William S. Halsted offers many reasons for the use of the skin grafting operation in these cases: An almost unlimited amount of skin may be removed and these grafts present a definite obstacle to the dissemination of carcinomatous metastases, and recurrences in the deeper planes may be promptly detected under the thin, grafted skin. Finally, the inner or thoracic wall of the axilla being covered to the extreme apex with grafts, the skin on the outer flap may be utilized, *in redundant fashion*, for covering the axillary vessels, for obliterating the subclavian dead space, and for elevating the axillary fornx.

Salvarsan in General Paresis.—E. H. Trowbridge has already (see this JOURNAL for March 16, 1912, p. 555) rehearsed the general negative results in the treatment of general paresis with salvarsan by the subcutaneous method; in many cases the salvarsan was not absorbed, and the method of administration was painful. Of late he has been using the intravenous method. The reports of eight cases are given with the conclusion that salvarsan is as ineffectual in these cases as are many drugs long since consigned to the waste basket. While some slight improvement has followed its use in a few cases, the drug when pushed has intensified the destructive action of the disease and

hastened the death of the patient. Trowbridge suggests two ways of working toward the eradication of the disease: Education of the public as to the future evils of syphilis and their prevention by immediate treatment; the other depends upon the discovery of the intermediate process or toxine which is causing the disease, and a curative drug or antitoxine to cure it.

Narcotic Addiction, a Systemic Disease Condition.—Ernest S. Bishop states that a satisfactory solution of the problem of narcotic addiction has not been reached. He believes firmly that there is a strong element of definite disease condition which demands consideration. Accepting this theory and applying it in treatment he has been able to obtain better results and in most cases a far more comfortable course. The writer pleads for more consideration and scientific investigation of this diseased condition.

Effect of Strong Purging on Blood Pressure and the Heart.—Charles H. Neilson and Robert F. Hyland's experiments, added to the clinical fact that patients with diseased hearts may become worse after brisk catharsis, warrant the assumption that all cases in which severe purging is used for depletion of the blood ought to be controlled by carefully watching the blood pressure, rate of pulse beat, regularity of the heart action, and the general condition of the patient.

MEDICAL RECORD.

February 8, 1913.

General Anesthesia by the Intravenous Route.

—William F. Honan and J. Wyliss Hassler emphasize the advantages of intravenous general anesthesia. By this method the anesthetic is directly introduced into the blood, a minimum amount is used, it is maintained there at a certain definite percentage, and it can be withdrawn abruptly without leaving in the body such excess as may later prove harmful to the patient. The induction of anesthesia is very rapid, the preliminary stage of excitement is nearly always absent, the respiration is almost natural, the color of the skin remains good, and the relaxation and flexibility are entirely satisfactory to the operator. The degree of narcosis can be maintained exactly, and when the operation is finished the patient is almost if not quite rational. The anesthetics are varied, a five per cent. solution of ether, with filtered, sterile, normal saline solution at 85° F.; hedonal dissolved in normal saline solution at 70° F. to make a 0.75 per cent. solution; paraldehyde 2.5 per cent., and ether three per cent. in normal saline solution; or paraldehyde alone. Ether has always raised the blood pressure from two to twenty mm., while with hedonal it falls from ten to twelve mm. One case, purposely selected, with a blood pressure of 186 mm., dropped to 142 mm., and remained at that level for some hours. There have been no evidences of hemolysis beyond that usually occurring in ordinary saline transfusion, or in the respiratory administration of ether. As far as the blood picture is concerned, hedonal is well borne. Complete anesthesia occurs in from one and one half to twenty-three minutes with ether, with hedonal in from twelve seconds to four minutes.

Extradural Anesthesia.—Jerome M. Lynch makes a preliminary report of seven operations under extradural anesthesia, and describes the technique of the method. In all but one case the anesthesia was perfect and satisfactory in all respects. In the one failure it was done very hurriedly and was abandoned, and on account of the nervousness of the patient, a general anesthetic was given. As a sufficiently large amount of the solution was not injected the writer feels that this case should not be included. The writer suggests the value of this method in cases of urethral stricture in oversensitive patients in whom it is necessary to explore the urethra or bladder, and also in old men on whom it is necessary to do a prostatectomy, or with any procedure involving the urethra or bladder.

The New Chemistry and the New Materia Medica.—Hermann Hille shows that inorganic matter and organic material are essentially the same, but they differ in form and structure. The inorganic world is crystalline, the organic is colloidal. The inorganic is coarse in particle and slow in vibratory activity, the organic fine in particle and rapid in vibratory activity. Mineral bodies, in organic form, are an essential constituent of food and of the animal organism, and are vitally important in the prophylaxis and cure of disease. On the other hand crystalline, or inorganic minerals are not suitable as food or remedies for the animal organism, and will be eventually eliminated from materia medica and replaced by vitochemical, or true organic minerals. The smaller the particles of a colloidal mineral and the higher their rate of vibration, the easier it is assimilated and the better it is adapted as a remedy. Many of the so called "organic" salts are not such in the true sense because all, or part, of the compound is still crystalline and not colloidal. The old chemistry is unable to differentiate between inorganic and organic. The new chemistry not only makes clear the difference between inorganic and organic but also sheds light upon *Nature's evolutionary principle*.

Neglect of Oral Treatment in Infectious Diseases.—C. Everett Field holds that the minutest instructions as to the care of the mouth are as important as therapy and diet. The teeth should be cleansed twice daily and the mouth rinsed or swabbed out before and after each feeding with a stimulating alkaline antiseptic solution. This course will tend to lessen complications and autoinfection. The food will taste better, the appetite will be maintained, and assimilation will be carried on to the utmost.

ANNALS OF SURGERY.

December, 1912.

Fatal Postoperative Embolism.—L. B. Wilson analyzes the cases of fatal postoperative embolism from the opening of the Mayos' clinic, September 30, 1889, as follows: The total number of deaths in the hospital for the period under consideration, from all causes, was 864, of which the fatalities from embolism are approximately five per cent. The mortality from embolism, based on 63,573 operations, is 0.07 per cent., or one death in every 1,352 operations. Twenty-six of the patients were males and twenty-one females, the youngest being

twenty-five years of age and the oldest seventy-two. Forty-one of the patients had been from two to thirty-five years, subject to some form of severe chronic debilitating disease. Nineteen of the fatalities occurred within the first week after operation, twenty-one more within the second week, four in the third week, and one each on the twenty-sixth, the thirtieth, and the sixty-fourth days, respectively. In thirty-six of the cases the embolism was pulmonary, in ten cerebral, and in one coronary. In twenty-eight of the forty-one cases posted, the originating thrombus was found in the field of operation or femoral vein. From a study of his cases and of the literature, he calls attention to the following general considerations: 1. Following operations, particularly on the bloodvessels, alimentary canal, and genitourinary organs, from one to two per cent. of all cases give more or less distinct clinical evidence of emboli, above seventy per cent. of which are in the lungs. 2. About ten per cent. of postoperative emboli which give clinical symptoms of diagnostic significance cause sudden death. 3. The source of the emboli can be definitely determined by autopsy as venous thrombosis in about eighty per cent. of the cases, as cardiac thrombosis in ten per cent., while ten per cent. are scattering or indeterminable. 4. The most important factors are the injury of the vascular walls, slowing and stagnation of the blood stream, the disintegration of the corpuscles of the blood from toxic substances and bacteriemia. 5. In consideration of the above mentioned factors the following precautionary measures suggest themselves: 1. The reduction of vascular traumatism to a minimum; 2, the encouragement of very early free movement on the part of the patient; 3, the pre-operative administration of drugs to increase the coagulability of the blood; and, 4, measures looking toward the reduction of bacteriemia.

Management of Grave Emergency Cases of Extrauterine Gestation.—F. Cobb draws the following conclusions from a study of 137 cases of tubal and interstitial gestation at the Massachusetts General Hospital from 1902 to 1910: 1. More than thirty-three per cent. of extrauterine gestations occur in young primipare. 2. Salpingitis, or pelvic infection, is not an essential or frequent causative factor. 3. Most of the cases of complete rupture with alarming hemorrhage occur in the early weeks, often in the first month; these are the cases that are rapidly fatal unless operated in. Patients who have gone two months or more are those that furnish the greatest number of nonemergency cases. 4. Cases of sudden, severe rupture, until signs of marked intraabdominal hemorrhage are present, often simulate other grave abdominal emergencies with tenderness and spasm, high white blood count, fever, and vomiting. 5. In grave emergencies with signs of extreme hemorrhage, operation should be done at once without waiting for a possible reaction. 6. In the less severe cases of tubal rupture, without signs of marked hemorrhage, a correct diagnosis is often difficult or impossible. 7. The menstrual history cannot be depended upon; many of the most alarming cases had skipped no period. 8. The character and location of the pain may vary within wide limits. 9. Tubal abortions are nearly

as frequent as tubal ruptures. Cases of tubal abortion seldom give a history of skipping a menstrual period, but a history of continued slight flowing or dribbling since the last period. 10. In regard to treatment he makes the following statements: Immediate operation is the method of choice; delay, even for transfusion, is dangerous and fatal, especially *delay with stimulation*; with proper technic and use of intravenous salt solution the percentage of deaths directly due to operation will be very low; in a very small percentage of cases direct transfusion will be needed and will save the small number of cases that would be fatal otherwise; direct transfusion should be done after operation, not before; at present, with the availability of infusion and direct transfusion, it is criminal for any operator of reasonable skill to delay.

Bevan's Operation for Undescended Testicle.—J. H. Jopson reviews the essential features of Bevan's operation as follows: Incision; laying open of the inguinal canal; exposure of the peritoneal pouch; division of cremaster muscle and fascia and transversalis fascia overlying it; transverse division of the sac (tunica) and ligation of upper end as in hernia operation; pursestring closure of the lower end to form a new tunica vaginalis testis; gauze dissection of the peritoneum from cord, including vas and vessels, and accompanied by division and separation of everything in the way of fibres or fascial bands from the vas and vessels, leaving these structures alone undivided. Then follows the preparation of a pocket or pouch in the same side of the scrotum, which is usually undeveloped, and after measuring the length of the cord by laying it downward upon the thigh, the testicle is placed in the scrotum and retained there by a pursestring at the base of the scrotum. Closure of the canal by the Bassini method, omitting transplantation of the cord, completes the operation. Exceptionally sufficient lengthening is not obtained by such free dissection of the cord to permit placing the testicle well down into the scrotum, and in these cases it will be noted that the spermatic vessels, the artery, and veins, and not the vas, are the agents holding it back, and the division of these vessels between the ligatures is then indicated, leaving the artery and veins of the vas to care for the nutrition of the testicle, a task to which they are nearly always equal.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

December, 1912.

Temporary Paralysis of the Right Vocal Cord, with Sensory Disturbance on the Left Side of the Body.—Wolfstein reports an unusual case in which the following symptoms were especially noteworthy: Transitory paralysis of the right vocal cord; marked disturbance in swallowing which was at first complete; the syringomyelic type of dissociation of sensation on the entire left side of the body below the lower border of the mandible, limited rather sharply to the midline of the body. The onset of the symptoms was acute with no subjective phenomena, except the inability to swallow. Improvement was rapid, and when the patient was seen six months later there was no sign of the disturbance remaining. The lesion was presumably a

small hemorrhagic focus involving the nucleus ambiguus of the right pneumogastric nerve, and the rapid improvement is explained by its absorption. An extensive discussion of the anatomical relations concerned accompanies the report.

Examination of the Cerebrospinal Fluid for Arsenic Following the Administration of Salvarsan.—Camp has analyzed the cerebrospinal fluid in seventeen cases of syphilis to each of which was administered 0.6 gramme of salvarsan intravenously. The fluid was withdrawn at intervals of from fifteen minutes to forty hours after the injections, and the conclusions are drawn "that doses of salvarsan up to 0.6 gramme, or perhaps more, given intravenously, do not ordinarily result in the presence of any arsenic in the spinal fluid, and that arsenic is present in the spinal fluid practically only when the dose is so large or so frequently repeated as to cause a meningoencephalitis, which is sometimes of a fatal character. The assumption that the introduction of salvarsan into the blood stream causes it to reach all parts of the body is, therefore, not borne out by observations." This would help to explain the unsatisfactory results of this treatment in cases of syphilis and metasyphilis of the nervous system.

Some Atypical Forms of Tabes and Paresis in the Light of Serodiagnosis.—Riggs emphasizes the importance of serodiagnosis, especially the four clinical reactions of Nonne, in the study of irregular types of parasyphilitic disease, and briefly records four illustrative cases of tabes in all of which the typical pupillary and reflex signs were lacking. The author states that the biological and chemical findings are not to be regarded as final, but "rather they should be used in conjunction with the clinical syndrome and regarded as corroborative only. Consideration of both these factors will enable one to arrive at a diagnosis in the great majority of instances."

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held at Old Point Comfort, Virginia, December 17, 18, and 19, 1912.

The President, Dr. J. M. T. FINNEY, of Baltimore, in the Chair.

(Continued from page 370.)

Adhesion of the Sigmoid.—Dr. H. A. ROYSTER, of Raleigh, N. C., said that sigmoid adhesion was associated with definite symptoms which he believed could be relieved by simple means. Three years ago he directed attention to sigmoid adhesion as a cause of pain in many cases of salpingitis which were attributed to the ovary and other organs. Further experience and observation had convinced him not only of the importance of this adhesion, but of its more widespread interest, so that the whole question had assumed a broader aspect and was coming into consideration in every case of abdominal diagnosis that we had presented to us. Women commonly complained of left sided pain, but it was not always properly interpreted. The ovary was too often blamed as the chief offender when, as a matter of fact, there was very little pain associated with ovarian disease. Most often the tube was the source of the pain and tubal trouble usually preceded any ovarian involvement. In a number of instances neither

the tube nor ovary was found involved, yet the woman had pain. The particular thing which was characteristic of sigmoid adhesion, as observed clinically was, first, pain during defecation, and not afterward. In addition to this, some of the patients described a stoppage at certain points. Constipation was the rule, but in a few cases the condition was associated with mucous diarrhea or a mucous discharge from the bowel. Usually the pain was low down in the left iliac region, but it might be higher up, near the spleen or midway. Most of it was below the anterior spine of the ilium. A typical example of sigmoid adhesion was that of a married woman who had given birth to two or three children. She complained of incessant pain in the left quadrant of the abdomen, and was sent in as having probably a case of tubal disease. Her greatest suffering was on going to stool. She was obstinately constipated. Pelvic examination was negative. Her abdomen was opened and a classic sigmoid adhesion revealed. This was dealt with the abdomen closed. She had been free from pain now for more than two years.

Dr. GUY LEROY HUNTER, of Baltimore, said the first of two or three cases he saw of this condition was operated in more than once for pelvic and other conditions in the abdomen which might be imagined to be causing the real trouble, and finally these sigmoid adhesions were found and relieved, with recovery of the patient. As regards the etiology, some of these adhesions did not come from the large bowel, but from without to the sigmoid. He found that in some of these cases the adhesions ran from the internal inguinal opening over to the large bowel in the shape of fanlike peritoneal adhesions. In other words, the infection had apparently not come from the large bowel at all, but from the lymphatics running into the peritoneal cavity with the broad ligament. He found in some cases chronic urethritis was associated with this condition of left sided pain, but not all females with chronic urethritis who had pelvic pain had these adhesions.

Dr. HENRY T. BYFORD, of Chicago, stated that in those cases in which the adhesions were not connected with the sigmoid, he thought the pain was usually low down, extended off toward the false pelvis about the iliac region, and made it more or less a backache; whereas in the other class of cases the pain extended up along the colon, was apt to extend into the back and be more to the left side.

Dr. JAMES E. MOORE, of Minneapolis, said sigmoid adhesion was a definite surgical entity, and we could relieve it by surgical measures. In a certain number of cases there was a definite symptom which would enable one to make a positive diagnosis from the ordinary examination, and that was a sausage shaped tumor extending up the left iliac region toward the splenic flexure.

Dr. WALTER B. DORSETT, of St. Louis, said if sigmoid adhesion was due to the colon bacillus or to some other organism, it occurred to him that it would be just as frequent in the male as it was in the female. In dealing with these cases he made the incision in the median line because of the fact that he had had some unpleasant complications in making the incision to the left of the rectus muscle.

Dr. GORDON K. DICKINSON, of Jersey City, spoke of four types of immobilization of the sigmoid. One was the congenital type, where the attachment of the left annexa to the sigmoid was rather closer than usual and interfered with its function. The second was the inflammatory type from the left annexa. The third was one in which there were inflammations around the cecoappendix which drew it over to the right and immobilized it, and, fourth, the type described by Doctor Royster. To him he had given a very perfect description of diverticulitis or multiple diverticula of the sigmoid.

Dr. J. WESLEY BOVEE, of Washington, D. C., said when there was infection of the left appendage it was entirely on the peritoneal surface; it would also spread under the peritoneum, and there was infiltration of tissue in the peritoneum which gave rise to adhesions. The one class of cases that gave rise to adhesions was that class in which upon examination he was not sufficiently expert to differentiate between tubal and ovarian disease and sigmoid adhesion. He was not expert enough in many cases to even find the tube or ovary where it had become diseased, for as the result of old infection it was plastered on the wall of the pelvis. If it contained pus, the pus was absorbed. We had a small tube and ovary buried in adhesions and on the

surface one could not find them nearly as easily as he could find the round ligament or ureter by bimanual examination in normal cases.

Pseudoperitoneal Cauls of the Colon.—Dr. JOHN WESLEY LONG, of Greensboro, N. C., considered the nomenclature of the subject, analyzing the terms, adhesions, membranous pericollitis, veils, pseudomembranes, etc., which were ordinarily applied to the conditions described. He showed that we often used very inexact terms in speaking of the membranous formations found about the colon. He proposed the term "pseudoperitoneal caul" as being description and withal correct. Caul meant a thin, serous membrane, and was especially applied to peritoneal membranes as the layers forming the great omentum. The membranes in question were evidently of peritoneal origin and by the testimony of the majority of writers they were a new formation, therefore pseudo; hence the term, "pseudoperitoneal caul of the colon."

There were four chronic conditions found in the right iliac fossa, namely, chronic appendicitis, Lane's kink, Jackson's membrane, and cæcum mobile, all of which had much in common as to etiology, pathology, and symptom complex, and were difficult to differentiate clinically. Of this group the writer laid stress on the pseudoperitoneal cauls of the colon, and believed them to be largely of infectious origin, though he did not deny the influence of developmental errors, splanchnotosis, and intestinal stasis.

Proctoclysis; Experimental Study.—Dr. HUGH TROUT, of Roanoke, Virginia, said in February, 1912, he presented a preliminary report of a comparative study of normal saline solution and tap water for proctoclysis in nearly one thousand cases. The present report was based on over two thousand cases and included all types of operations as well as replies received, from two hundred and thirty-two hospitals with the following deductions: 1. There was no uniformity in preparing saline solutions in the various hospitals. 2. A soft rubber catheter was employed instead of a hard nozzle, and very seldom did the patient realize anything was in the rectum. 3. All sodium salts were toxic, and quite frequently dangerous doses were given by the rectum. 4. Tap water did not irritate the rectum, and patients would absorb one third more than they would of salt solution. 5. It required twice as much water by mouth to relieve thirst when patients were taking salt solution by rectum. 6. Salt solution did not seem to have any effect on the renal functional test of phenolsulphophthalein. 7. Twenty-seven patients had tested salt without knowing the character of the solution they were taking by rectum. 8. Fifty-eight cases had been operated in at other hospitals, and all the patients had commented on the absence of thirst and decrease in nausea in comparison with previous operations. 9. Two hundred and eighty-seven operations on the perineum and rectum in which proctoclysis could not be employed, had been in the hospital during this period, and all showed a marked increase in thirst and nausea in comparison with other cases. 10. Four cases of death had been reported in the literature from the use of salt solution. 11. The giving of fluid by rectum met Nature's demands for the relief of postoperative thirst in a simple, effective, and harmless manner.

Dr. J. WESLEY BOVEE, of Washington, D. C., congratulated Doctor Trout on his work in this direction, because it was painstaking and thorough. He had no idea he would get nearly as good results with plain or tap water as with water containing salt, and he said this after having had a large experience in the use of salt solution.

Dr. ERNST JONAS, of St. Louis, said they had been changing from saline solution in the rectum to plain water proctoclysis, and although he could not give the exact statistics, he could confirm the very favorable report of the essayist. Patients had been much more comfortable. Edema of the legs had been observed less frequently.

Dr. F. W. McRAE, of Atlanta, said in one case he knew of, a stronger salt solution was used instead of the usual dilute salt solution, and death supervened twelve hours later. It was a simple appendectomy where the nurse used a pint of the stronger solution.

Dr. F. D. PARHAM, of New Orleans, said that for some time he had been using very much weaker solution, namely, one tenth of one per cent. solution, in place of the ordinary normal salt solution, but had not done it as systematically as the essayist, who had brought out clearly

the advantages of using water in place of salt solution in most of these cases.

Dr. J. M. T. FINNEY, of Baltimore, had had the opportunity of seeing some of Doctor Trout's work and knew the care with which these observations had been made and the long series of cases which they covered make it a paper of great importance in view of his findings.

Dr. ROBERT MILNE, of London, England, said it would be interesting to know the temperature of the tap water in the receptacle. At the London hospitals they gave salt solution as a routine for years, and in the receptacle the temperature of it was 105° F. until some one found that when the saline solution came out of the end of the catheter its temperature was only about 90° F., that is, in running through a rubber tube three or four feet long the saline solution dropped about fifteen or twenty degrees in temperature. Since then they usually kept it in a thermoflask at the foot of the bed and kept it in that flask at a temperature of 120° F.

Dr. O. H. ELBRECHT, of St. Louis, Mo., said if one would take a tube, six feet long, which was about the average length of the tube which would be used for proctoclysis work, he would find there was a drop of 40° F. in temperature in the six feet of rubber tubing, with the water running at the rate of sixty drops a minute. This he simply used as a standard to gauge how much salt solution would run in in an hour.

Dr. W. P. CARR, of Washington, D. C., had always been rather afraid of salt solution, especially when it was used intravenously and subcutaneously, and he did not think he had given it intravenously in half a dozen cases, and he seldom used it under the skin. He was glad to hear of such gratifying results from the use of plain tap water.

Doctor TROUT had been able, except in a few cases, to get nine quarts of salt solution in the rectum. He had found drainage cases absorbed more than any other class of cases. He used from 3,500 to 4,000 c. c. in the water cases, and with salt solution he used from 2,500 to 3,000 c. c. He gave it every two or three hours by catheter, would let it run in, and then take out the catheter.

Acute Invagination of Ileum Secondary to Sarcoma of Small Intestine.—Dr. C. JEFF MILLER, of New Orleans, said a search through the list of reported cases revealed only a few similar instances in which sudden acute symptoms gave the first warning of intestinal trouble. He found only three such cases in Moynihan's list. In the other thirty-seven cases, symptoms of transitory abdominal pain, occasional vomiting attacks, and nausea preceded the recognition of the growth from a few weeks to over three years. If there could be a cardinal symptom it would be the presence of a tumor. It was present in over ninety per cent. of the cases when brought for examination or operation. It was always present in children and nearly as constant in adults. More than half the cases were reported in patients over forty years of age. Cachexia was marked in children only, except in the late stages. Fever was often present, as might be expected from the large percentage in which ulceration occurred. Constipation was not a reliable symptom, although often present. Diarrhea was noted in a few. Three cases had been reported as occurring in the ileum years after severe attacks of typhoid fever, and Notnagel had reported an instance of sarcoma that developed from tuberculous ulcerative scars. In thirty out of forty-six instances the growth was single, in sixteen multiple. It was curious to note the frequency of adhesions between the bladder and involved coil of intestine. In forty-six cases Lecene had reported adhesions in twelve, seven of which were instances in which the bladder was the involved structure.

Extrauterine Gestation.—Dr. STUART MCGUIRE, of Richmond, Virginia, reported five cases on which he had operated a second time for extrauterine gestation. He quoted Dr. Richard R. Smith who tabulated 2,998 operations for tubal gestation in which recurrence followed in 113 cases or 3.8 per cent. He did not believe these figures represented the true frequency of the accident, as he thought it was impossible to follow up such cases accurately over a sufficient period of time to get final results. While he agreed theoretically with the rules laid down by Smith, he did not think they would prove of much service practically, as they left the decision of the question too much to the patient. A woman just before an operation for a ruptured ectopic sac was in no condition to understand or settle a complicated proposition. If

she decided either for or against the removal of both tubes, she would in after life frequently regret the responsibility of the decision, fearing on the one hand a repetition of her former accident, or indulging on the other in morbid longings for a child whose advent she had made impossible. The operator should settle the question for himself without taking the woman into his confidence, remembering all the time that a surgeon's and a patient's attitude toward an operation was often very different, and that their estimates of the desirability of a baby were often very far apart. In deciding the question the surgeon should try to put the patient in the position of a member of his own family and ask himself, "what should I want done if this were my wife or my sister or my daughter?"

Indications for Abdominal Cæsarean Section.—Dr. REUBEN PETERSON, of Ann Arbor, said the more common indications for this operation were obstructions to labor, pelvic contractions, fibromyomata, ovarian tumors, stenosis of the cervix and vagina, miscellaneous, such as previous ventrofixations, and large size of the child. Other indications were uterine hemorrhages, concealed accidental hemorrhage, placenta prævia, constitutional crises, eclampsia, and contracted pelvis. Probably more Cæsarean sections would be performed for this indication than for any other. The operation was imperatively demanded in cases where the conjugata vera measured 7.5 cm. or less, and the child was living. When the child was dead and the true conjugata was 6.2 cm. or under, Cæsarean section was still indicated, on account of the danger to the mother of attempts to deliver the craniotomized child through such a small pelvic diameter.

He was at present engaged in tabulating the results of 425 cases of eclampsia treated by abdominal Cæsarean section, and some very interesting facts were being brought out. Not only had the literature been carefully searched and all recorded cases been collected, but many operators all over the world had been kind enough to furnish him with unpublished cases. Thus, the statistics represented not the work of a few, but over two hundred operators. The total maternal mortality, counting patients operated upon before the aseptic era, was 36.9 per cent. while this was reduced to 31.8 per cent. if only the 317 patients operated upon since 1900 were counted. The fifty per cent. mortality ascribed to abdominal Cæsarean section in the treatment of eclampsia could be explained by errors in the selection of cases, for many eclamptic patients were subjected to the operation who were hopelessly septic. These patients did not die from the eclampsia or the operation itself. Many of them perished because of the poor judgment on the part of the operators. They would have died even if the operations had not been performed for eclampsia.

In 245 cases of eclampsia, where there was no sepsis or very little chance of it prior to the abdominal Cæsarean section, the material mortality was only twenty-four per cent. It was significant that in fifty cases where operative procedures preceded the Cæsarean sections, the material mortality was forty-eight per cent., the difference in mortality being due, not to the eclampsia, but to the sepsis accompanying the eclampsia, a condition which could be avoided once this relation of sepsis to Cæsarean section was fully realized by the profession. The results of abdominal Cæsarean section for eclampsia so far as the fetus was concerned should be and, as a matter of fact, were gratifying in the 425 cases. In 217 cases since 1900, where the fetal statistics could be studied, the fetal mortality was only 5.5 per cent. Even this mortality was reduced to 3.7 per cent. in 132 cases where the sections were performed after from one to five eclampsia convulsions.

These statistics were cited to show that the last word had not been said regarding the place of abdominal Cæsarean section in eclampsia. At last, the statistics in over 400 cases had shown beyond a doubt that no one was justified in dismissing the treatment of eclampsia by abdominal Cæsarean section with a short statement that the mortality was so high as to make it an unjustifiable operation.

Abdominal Gestation with Living Child.—Dr. J. SHELTON HORSLEY, of Richmond, Va., reviewed the literature on abdominal pregnancy with a living child and reported a case. From 1809 to 1912 there were 103 cases on record. Regarding those cases as entirely successful in which both mother and child were saved, and the child living a year after the operation, there were five such cases. The

author reported a case which fell within these requirements, that of a colored woman in whom pregnancy was supposed to be normal until her physician was called in at about full term. He recognized abdominal gestation as the uterus was empty. Doctor Horsley did an abdominal section and delivered a male child, well formed, and weighed six pounds. The mother made a satisfactory recovery, and a year after the operation both mother and child were well.

Application of Iodine to the Generative Organs of Women in Infections and Preparations for Surgical Operations.—Dr. J. WESLEY BOVEE, of Washington, D. C., stated that the conditions in which this treatment was applicable were: 1. Acute infections of the vulva, vagina, urethra, and the whole endometrium. 2. Acute peritoneal infection with proper limitations. 3. Chronic conditions following infections of these structures and of the tubes, ovaries, and pelvic peritoneum. 4. In pelvic surgery requiring examinations, manipulations, or operations on or through the vagina. 5. In such procedures as required opening the cervical canal or uterine cavity from either the vaginal or peritoneal side. 6. As a routine method of preparation of the field of operation on all these structures as well as the rectum.

For several years he had confined the treatment of recent and remote Neisserian infection of the vulva, urethra, vagina, and cervix to the application of iodine. He had great confidence in the efficacy of this remedy when applied early. If the condition might be treated before the infection had passed into the uterine cavity or the glands of Bartholin, it could often be eradicated by one thorough painting of the exposed areas below the uterine cavity. If the first application failed, a second made three days later commonly succeeded. In pelvic surgery that required examinations, manipulations, or operations on or through the vagina, this plan of local sterilization was far superior to any other he had used. The importance of the vaginal application of iodine was emphasized in the radical operation for cancer of the cervix uteri. The high mortality from infection of the peritoneum as a result of breaking of the specimen during its removal and resulting leakage was a striking feature of the recent report of Wertheim's work in this field. This sad complication was best obviated by the use of the iodine to both the vagina and endometrium, preceded by galvanocauterization with or without curettement, if excrescences or craters were present. Since the etiology of cancer was not known, he would warn against driving any cancer material beyond the uterus by employing considerable pressure in injecting that organ.

The Best Operation for Cancer of the Uterus.—Dr. HERMAN J. BOLDT, of New York, stated that vaginal extirpation of a carcinomatous uterus gave a lower primary mortality, particularly the method of vaginal hysterectomy generally employed, than the extended abdominal hysterectomy. It must be conceded, however, that in cancer of the cervix the percentage of recurrences was larger after cancer operations in which vaginal hysterectomies were done. When one decided upon vaginal extirpation, the technique devised by Schauta, of Vienna, whereby the ureters were exposed and the uterine arteries isolated and tied, so that the parametria might be extensively extirpated, was the method that should find preference. Paravaginal section, which was a secondary accompaniment of the operation, would, if surgical precautions were used, give no more trouble than any ordinary wound. With the paravaginal section one secured satisfactory access to the field of work, which, without it, would be a physical impossibility.

Despite its great superiority over the regular hysterectomy, the method usually employed, it should be limited to obese women, the incipient stages of epithelioma of the vaginal part of the cervix, and to cancer of the body of the uterus, when the uterus was freely movable. It was particularly applicable in the cases of the aged, because of the greater sluggishness of the lymphatic system in persons well advanced in years. Generally speaking, however, the extended abdominal operation should be done unless there was a contraindication. One could undoubtedly remove more parametrium through the abdominal route. Furthermore, one could inspect the glands and extirpate them if the abdomen was opened, which could not be done when the vaginal route was used. The remote results showed, that if the abdominal operation were done properly, the ultimate percentage of recoveries from

cancer of the uterus was fully fifty per cent. more than by the vaginal route. But one must really do the extended operation, not the original panhysterectomy first done by Freund for cancer of the uterus.

Fatal Hemorrhage from Erosion of the Gastroduodenal Artery by Ulcers.—Dr. JAMES E. THOMPSON, of Galveston, had seen two fatal cases of bleeding from duodenal ulcers in spite of the operation of gastroenterostomy. In both cases the ulcer was situated on the posterior surface of the first portion of the duodenum, and in both the hemorrhage which proved fatal came on at a time when it looked as if the patients would recover from the operation. The first patient died thirty-four hours after the operation with all the symptoms of concealed hemorrhage, but as no autopsy was allowed, one could only surmise from the position of the ulcer that the gastroduodenal vessel was eroded. The second patient lived forty-two hours after the operation.

A Sign of Value in Obscure Cases of Chronic Appendicitis Elicited by Rectal Palpation.—Dr. FRANCIS REDER, of St. Louis, stated that in the more obscure forms of chronic appendicitis, where other points had failed, he had been able to make an absolute diagnosis through a point located in the first (sigmoidal) portion of the rectum. These cases belonged to a class whose symptomatology did not invite attention to the appendix region on account of the total absence of focal symptoms. In many of these cases pressure at McBurney's point had not given the reflex pain that was expected and usually obtained in a lesion of the appendix of this character, while pressure at Morris's point had proved equally as negative. An absence of these reflexes was usually sufficient to dismiss the thought of an existing appendix lesion. The point in the rectum, however, had invariably given a positive reaction in the presence of a chronically diseased appendix. The part of the rectum concerned in this examination was the first portion. It began at the sacroiliac synchondrosis, usually the left side was entirely covered with peritoneum, and had a mesorectum which gave that portion of the bowel a certain amount of mobility. This mobility was of some value in the examination. Within the lumen of the bowel at the junction with the sigmoid about three and a half or four inches above the margin of the anus, there existed aggregations of circular fibres that formed a valve. This valve was constant, was known as the valve of O'Beirne, and varied but little in its distinctive circular characteristics. This valve served as a landmark and was an important factor in the examination.

In making the examination to reach the points, the patient was comfortably placed on the examining table upon his back with both legs flexed. The index finger, well lubricated, was introduced into the rectum, and a search made for O'Beirne's valve. This valve was sometimes reached with some difficulty, especially when it was located high or when the examining finger was rather short. It was absolutely necessary that the valve be located. Its recognition was easy; the sensation imparted was very similar to that which the examining finger experienced when introduced into the os uteri during the first stage of labor. In size, he had found the valve to vary in some as large as a ten cent piece, and in others as large as a quarter. The valve having been located, the finger was hooked into it and gentle traction made upon the structures to test the mobility of that portion of the rectum. The tip of the finger was allowed to rest within the lumen of the valve, and the patient asked if he experienced any pain. The answer was usually no. Should there be any pain, it was generally referred to the sphincter area of the rectum. By allowing the finger to rest for a short time this pain would subside. After being assured of the total absence of pain by the patient, the tip of the finger was gently pushed upward toward the right iliac fossa, when, in the event of a lesion of the appendix, the finger would touch a point beyond the valve that would cause the patient great pain. As a control manœuvre a similar point might be touched by sweeping the examining finger toward the left inguinal fossa, usually with negative results. The accuracy of the diagnostic value of this point had been verified in some two hundred cases. The patients comprising this series gave a period of time when their health was not good ranging from six months to twelve years. After removal of the chronically diseased appendix, the patient was fully restored to health in from three months to two years.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Textbook of Ophthalmology. By Professor PAUL ROEMER. Translated by MATTHIAS LANCKTON FOSTER, M. D. Volume II. New York: Rebman Company, 1912. Pp. 276-571.

The first volume of this textbook, to be completed in three volumes, we reviewed some time since. This, the second volume, is quite the equal of the first in every respect. The text shows the same masterful translation, and once more we congratulate the author on his translator. There is no denying the forceful personal element in this work. The form of the clinical lecture cannot be surpassed as a means of impressing the reader; indeed it is intermediate teaching of the highest order. The teaching is sound throughout and so thoroughly modern as to commend it to every seeker after ophthalmic truth. The four chapters that stand out are those on sympathetic ophthalmia, on judicial medical opinion in injuries of the eye, on diseases of the orbit, and on glaucoma. It is not often that the original investigator so puts the very essence of himself into a textbook. Our only complaint is the same one we indulged in at the first volume, namely, the scant reference to any but German authorities; but anyone who reads this book carefully will readily forgive the author because he has made the reader think; and that is no small thing to accomplish in a textbook in this day and generation.

Mind and Its Disorders. By W. H. B. STODDART, M. D., F. R. C. P. Second Edition. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xvi-518. (Price, \$4.)

Recent advance in psychiatry has been so rapid that, although the first edition of this book appeared but three years ago, preparation of the second edition required alteration in almost every chapter, as well as the addition of two new chapters dealing with the study of the subconscious mental processes by methods of psychoanalysis. The work is arranged in three parts, the first being devoted to normal psychology, the second to the psychology of the insane, and the third to a consideration of mental diseases. About 175 pages are used by the first two parts which are calculated to prepare the reader better to comprehend and see in perspective the symptoms of mental disease. The classification of insanity is with slight modifications that of Kraepelin.

Skin Grafting. By LEONARD FREEMAN, B. S., M. A., M. D. St. Louis: C. V. Mosby Company, 1912. Pp. 139. (Price, \$1.50.)

This small volume furnishes an excellent epitome of the whole subject of skin grafting. The author takes up the history of the procedure from the very earliest times, and after describing in detail each of the several methods, gives at the end a comparison of methods based on the experience of others and himself. The book shows careful study and practical knowledge and cannot but be of interest and profit to one desiring either a superficial view of the subject or details of any method. The author has introduced some excellent photographs and diagrams which help to elucidate the technic of the various steps in the operation.

The History of the Prison Psychoses. By Dr. PAUL NITSCHKE, and Dr. KARL WILMANN. Authorized Translation by FRANCIS M. BARNES, Jr., M. D., and BERNARD GLUECK, M. D. With an Introduction by WILLIAM A. WHITE, M. D. New York: The Journal of Nervous and Mental Disease Publishing Company, 1912. Pp. xiii-84. (Price, \$1.25.)

The influence of prison confinement on the development of insanity has received the attention of psychiatrists for more than fifty years. The Germans particularly have directed attention to the subject, and the present volume is a review of their literature and a presentation of the modern conception of the prison psychoses. This is a most important question, for there is no doubt that a very large proportion of criminals is composed of sufferers from dementia præcox and other psychoses as well as various grades of degeneracy. This fact does not receive

sufficient consideration in courts of law, and this type of offenders as a consequence is usually placed in the worst possible environment. The effect of prison life on the mentally unstable varies according to individual predispositions and conditions; existing psychoses receive special coloring, and acute or chronic psychoses develop of a more or less characteristic type. These and other considerations call for improved methods of dealing with the criminal, and to those who are interested in these problems this monograph will be particularly welcome.

Jahresbericht über die Ergebnisse der Tuberkuloseforschung, 1911. Von Dr. F. KÖHLER. Jena: Gustav Fischer, 1912. Pp. 194.

In this publication the author has not attempted to give a complete summary of all that has been published, but has selected what seems to be the more important. The arrangement of the material is good under the headings of prevalence, etiology, pathology, diagnosis, prophylaxis, and therapy with some subdivisions. In addition there are a good index and a list of authors' names. As a means of ready reference this compilation of abstracts is extremely good and of distinct value; a very large amount of information has been made accessible.

Die Krankheiten der Leber. Von Prof. Dr. H. QUINCKE und Prof. Dr. G. HOPPE-SEYLER. Bearbeitet von Prof. Dr. G. HOPPE-SEYLER. Kiel. Wien und Leipzig: Alfred Hölder, 1912. Pp. viii-809.

That this is part of Nothnagel's System of Medicine and that it is written by so widely known an author as Professor Hoppe-Seyler is sufficient indication of its value. The work is really colossal; the world's literature has been searched and the best made use of. Following the various portions are the references from which the material has been drawn. The book is really an encyclopedia of the diseases of the liver. In this second edition various diseases have been more fully discussed, tuberculosis and syphilis now having a chapter devoted to each. Although the attempt has been made to deal only with the essentials and to condense them as much as possible, this edition is larger than the first. Inasmuch as numerous important investigations appeared during the printing an appendix has been added in which have been placed these newer matters. In regard to Banti's disease the author states that syphilis must always be thought of. The one criticism that might be made is that some of the photographs, used for the plates, are not very clear. The book is a very valuable one and can be highly recommended.

Herzmisbildungen. Von Professor J. G. MÖNCKEBERG. Jena: Gustav Fischer, 1912.

This splendid work consists of a series of sixty-five plates upon which are shown 114 cross sections of hearts the seat of anomalies such as septal defects, bicuspid aortic valve, congenital aortic stenosis, rudimentary left ventricle, persistent ductus Botalli, cor biloculare, etc. Sixteen cases, in addition to the normal hearts of two newborn infants, are dealt with, most of them showing unusually severe types of malformations, the nature of which is very clearly shown in the sectional drawings. Ample descriptive matter accompanies each of the plates. Special pains were taken by the author to ascertain the condition of the auriculoventricular system in each of the specimens. In none were either the sinus nodes or the auriculoventricular bundle missing, although the latter was sometimes identified only with difficulty owing to the absence of the septum or coronary sinus or abnormal relations of the great vessels. From his experiences with these hearts, Mönckeborg concludes that the so called "central fibrous body" of the heart, situated behind the root of the aorta, is the most trustworthy and constant guide to the point of origin of the auriculoventricular system.

BOOK AND MAGAZINE NOTES.

We have often had the pleasure of directing the attention of our readers to the bound half-yearly volume of *The Prescriber*, the monthly journal edited in Edinburgh by Thomas Stephenson, Ph. C., F. R. S. E., F. C. S. Volume VI has just been issued and will be found as useful and as entertaining as its predecessors.

A recent issue in the Riverside Educational Monographs is *The Teacher's Health*, by Lewis M. Terman, associate professor of education at Leland Stanford, Jr.

University. We commend this book to our readers as affording much unexpected information regarding the profession of teaching and those who undertake it. Teachers seem to be drafted into our schools in a somewhat wholesale manner, and the addition of a medical psychologist to examining boards might not be a bad idea. Moreover, a very large percentage of women teachers suffer from ill health of various kinds, a fact which should direct expert medical attention to their problems. The book is published by the Houghton Mifflin Company.

The Psychology of Insanity, by Bernard Hart, M. D., of London, is a late issue of the Cambridge Manuals of Science and Literature published in the United States by G. P. Putnam's Sons. This little work of 172 pages may be cordially commended to the general practitioner who has not had the time or opportunity to study insanity carefully, especially as it offers an excellent introduction to the theories of Freud which promise to revolutionize the attitude of the practitioner toward a certain class of patient, yet are little known to many American physicians. A careful reading of the preface will prevent the uninstructed reader from being misled.

Another Cambridge manual is *The Individual in the Animal Kingdom*, by J. S. Huxley, B. A., a book of 160 pages which the author hopes will help to bridge the gap between science, philosophy, and the ideas and interests of every day life. To anyone with a rudimentary knowledge of biology this book will be of fascinating interest, while it will stimulate useful thought in those who are accustomed to correlate their knowledge and apply apparently extraneous information to the problems of practice.

Etude historique et critique sur les générations spontanées et l'hétérogénie, by Hector Grasset, published by Jules Roussel in Paris, is a valuable and interesting contribution to the subject of spontaneous generation, and those who have made up their minds on this question may find, upon its perusal, that their conclusions were somewhat premature. The author is a distinguished scholar and critic, of vast erudition and practical laboratory knowledge, and has presented this deep problem of fundamental philosophical importance in a lively and agreeable style, brightening it with personal recollections. The book consists of 190 closely printed pages, and is priced at four francs; it is to be hoped that, in view of the paucity of English books on the subject, a translation will be offered.

La vie du règne minéral is another publication of Jules Roussel, a brochure of 115 pages issued at three francs. It is by René Schwaebé and takes up the curious similarities recently observed in the mineral kingdom to the phenomena of biology, which seem to prove that there is really no inorganic chemistry. On a basis of the unity of matter, proofs of which are offered, the author discusses form and crystallization and extends his thesis of there being a life in the mineral kingdom as in the animal and vegetable kingdoms. The foreshadowing of these ultra-modern theories by the alchemists has interested the author. The book deserves the attention of the intelligent physician as well as of scientists and thinkers generally.

Meetings of Local Medical Societies.

MONDAY, February 24th.—Medical Society of the County of New York.

TUESDAY, February 25th.—New York Dermatological Society; New York Psychoanalytic Society; Metropolitan Medical Society of New York; New York Medical Union; Riverside Practitioners' Society, New York; Valentine Mott Medical Society, New York; Woman's Hospital Society, New York; Washington Heights Medical Society; Alumni Association of Seney Hospital, Brooklyn; Buffalo Academy of Medicine (Section in Pathology); Rome, N. Y., Medical Society.

WEDNESDAY, February 26th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Medical Union, Buffalo.

THURSDAY, February 27th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Bronx Medical Association; New York Physicians' Association; New York Celtic Medical Society; Hospital Graduates' Club, New York.

FRIDAY, February 28th.—New York Academy of Medicine (Section in Public Health); Academy of Pathological Science; Society of German Physicians, New York; New York Clinical Society (annual); Manhattan Medical Society; Italian Medical Society (Genealogical Hall); Hospital Graduates' Club, Brooklyn; Audubon Medical Society.

Official News.

United States Public Health Service:

Official list of changes of stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 5, 1913:

Clark, T., Surgeon. Directed to proceed to certain points in Kentucky, to investigate the smallpox situation and advise with local health authorities relative to its control; leave of absence for seven days en route to station amended to read "five days leave of absence en route to station." **Driskell, S. E.**, Acting Assistant Surgeon. Granted six days' leave of absence from January 30, 1913, under paragraph 210, Service Regulations. **Frost, W. H.**, Passed Assistant Surgeon. Granted five days' leave of absence, February 1 and February 5-8, 1913, under paragraph 191, Service Regulations. **Goldsborough, B. W.**, Acting Assistant Surgeon. Granted one day's leave of absence, without pay, February 2, 1913. **Kempf, G. A.**, Assistant Surgeon. Granted three days' leave of absence from January 19, 1913, on account of sickness. **Lloyd, B. J.**, Passed Assistant Surgeon. Leave of absence for two days from December 13, 1912, on account of sickness, amended to read "two days' leave of absence from December 13, 1912." **Warner, H. J.**, Passed Assistant Surgeon. Leave of absence for seven days from January 19, 1913, amended to read "five days' leave of absence from January 19, 1913." **Wertebaker, C. P.**, Surgeon. Granted one day's leave of absence, January 23, 1913.

Board Convened.

Board of medical officers convened to meet at Vancouver, B. C., for the reexamination of a family of detained aliens. Detail for the board: Acting Assistant Surgeon H. R. Storrs, chairman.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 15, 1913:

Chase, C. L., First Lieutenant, Medical Reserve Corps. Left Fort Dade, Fla., on February 15th on leave of absence; placed on inactive list on expiration of leave. **Chilton, F. N.**, Lieutenant, Medical Corps. Left Fort Myer, Va., on February 12th on leave of absence for one month and fifteen days; under orders to proceed to the Philippine Islands on April 5, 1913. **Hill, E. C.**, Captain, Medical Corps. Sick in quarters on February 10th. **Lemmon, Robert**, First Lieutenant, Medical Reserve Corps. Resignation accepted, to take effect February 9th. **McKnight, J. R.**, Lieutenant, Medical Corps. Left Fort Andrews, Mass., on February 14th, for Newport News, Va., to report to the Medical Superintendent of the Army Transport Service. **Merrick, J. N.**, First Lieutenant, Medical Reserve Corps. Relieved from active duty in the Medical Reserve Corps on February 7, 1913. **Morse, A. W.**, Major, Medical Corps. Left Fort Barrancas, Fla., on February 9th, to inspect the Mississippi Militia. **Murtagh, J. A.**, Major, Medical Corps. Left Fort Leavenworth, Kansas, on February 7th, on leave of absence for one month, with permission to apply for an extension of one month. **Rand, Irving W.**, Major, Medical Corps. Left Fort Hancock, N. J., on February 10th, on ten days' leave of absence. **Schreiner, E. R.**, Major, Medical Corps. Ordered to accompany the Third Squadron, First Cavalry, to the Presidio of Monterey, Cal., and, upon completion of this duty, to return to Boise Barracks, Idaho. **Siner, J. L.**, Lieutenant, Medical Corps.

Left Fort Ethan Allen, Vt., on February 12th, on leave of absence for twenty days. **Thornburgh, R. M.**, Major, Medical Corps. Left Letterman General Hospital, San Francisco, Cal., on January 31st, on leave of absence for two months. **Wilson, W. H.**, Lieutenant, Medical Corps. Left his post, Fort McKinley, Me., on February 6th, on leave of absence for twenty days.

United States Navy Intelligence:

No change in the stations and duties of officers serving in the Medical Corps of the United States Navy was reported during the week ending February 15, 1913.

Births, Marriages, and Deaths.

Born.

Sterling.—In Philadelphia, on Thursday, January 30th, to Dr. and Mrs. A. Sterling, a son.

Married.

Bedell—Wilson.—In New York, on Wednesday, February 12th, Dr. Arthur Joseph Bedell, of Albany, and Miss Bessie Wilson. **Bond—Faulkner.**—In Denison, Ia., on Tuesday, February 4th, Dr. L. L. Bond and Miss Helena Faulkner. **Bricker—Campbell.**—In Ocean City, N. J., on Wednesday, February 5th, Dr. William H. Bricker, Jr., and Miss Nenoetta Campbell. **Dreibelbies—Swymler.**—In Philadelphia, on Tuesday, February 4th, Dr. Wilmer Dreibelbies and Miss Alice Swymler. **Taylor—Hungerford.**—In New York, on Wednesday, February 12th, Dr. Joseph Charles Taylor and Miss Marion R. Hungerford.

Died.

Callan.—In Brooklyn, N. Y., on Thursday, February 13th, Dr. William J. Callan, aged forty-seven years. **Campbell.**—In Kansas City, Mo., on Sunday, February 2d, Dr. William H. Campbell, aged eighty-three years. **Duffy.**—In Providence, R. I., on Saturday, February 8th, Dr. James F. Duffy, aged sixty-two years. **Ganster.**—In Brooklyn, N. Y., on Tuesday, February 11th, Dr. William F. Ganster, aged forty-seven years. **Geddings.**—In Washington, D. C., on Thursday, February 13th, Dr. H. D. Geddings, Public Health Service, aged fifty-four years. **Grimm.**—In New Martinsville, W. Va., on Saturday, February 1st, Dr. R. B. Grimm, aged eighty years. **Hughes.**—In Chicago, on Wednesday, February 5th, Dr. John O. Hughes, aged seventy-two years. **Jarboe.**—In Hagerstown, Md., on Tuesday, February 11th, Dr. Joseph T. Jarboe, aged sixty-five years. **Jeffery.**—In Brooklyn, N. Y., on Tuesday, February 11th, Dr. George Clinton Jeffery, aged sixty-one years. **Jump.**—In Plainfield, Ill., on Saturday, February 1st, Dr. David W. Jump, aged sixty-five years. **Magoris.**—In Binghamton, N. Y., on Wednesday, February 5th, Dr. A. Eugene Magoris, aged sixty-five years. **Monteiro.**—In Cambridge, Mass., on Saturday, February 8th, Dr. Manuel Garcia Monteiro, aged fifty-four years. **Parker.**—In Eau Claire, Wis., on Friday, February 7th, Dr. Edward H. Parker, aged fifty-eight years. **Ritchie.**—In St. Paul, Minn., on Sunday, February 2d, Dr. Parks Ritchie, aged sixty-seven years. **Ross.**—In Ambridge, Pa., on Tuesday, February 4th, Dr. Daniel C. Ross, aged thirty years. **Sanford.**—In Attleboro, Mass., on Wednesday, February 5th, Dr. Edward Sanford, aged eighty-seven years. **Sensenig.**—In Harrisburg, Pa., on Wednesday, February 5th, Dr. Isaac B. Sensenig, aged sixty-six years. **Shaw.**—In Maysville, N. C., on Thursday, February 6th, Dr. Graham Shaw, aged fifty-two years. **Small.**—In Saranac Lake, N. Y., on Monday, February 3d, Dr. Edward Hanna Small, aged fifty-two years. **Smith.**—In Los Angeles, Cal., on Friday, February 7th, Dr. George B. Smith, aged sixty years. **Steinbach.**—In Philadelphia, on Monday, February 10th, Dr. Lewis W. Steinbach, aged sixty-two years. **Washburn.**—In New Haven, Conn., on Monday, February 10th, Dr. Edward L. Washburn, aged seventy-four years. **Williams.**—In New York, on Wednesday, February 12th, Dr. James Jeremiah Williams.

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Original Communications.

ESSENTIAL FEATURES OF SYMPTOMATOLOGY AND PROGNOSIS IN DEMENTIA PRÆCOX.

By F. X. DERCUM, M. D.,
Philadelphia,

Professor of Nervous and Mental Diseases, Jefferson Medical College.

The symptomatology of dementia præcox and its prognosis is so extensive as to permit in a paper of this kind but the briefest consideration. I shall therefore outline the symptoms only in so far as they serve to define the affection; it is absolutely necessary before discussing the prognosis to know definitely the disorder to be considered.

I need not here refer to the original studies of Kahlbaum, in which he separated out from the mass of demented cases the two forms to which he gave the names hebephrenia and catatonia, nor to the subsequent studies of hebephrenia by Hecker, and still less to the generalizations by Kraepelin as to the close relation existing between these two forms which he grouped together under the term dementia præcox. Subsequently he gave to the affection, which other German writers had described as acute paranoia and the French writers as acute systematized insanity, the term dementia paranoides, and included it also under the term dementia præcox.

The term dementia præcox has very many objections. It has, however, gained wide acceptance and must be regarded as having been definitely added to our nomenclature. The term is of French origin; it was first employed in Germany by Pick, was afterward applied by Kraepelin, as just pointed out, to the hebephrenic, the catatonic, and the paranoid forms of juvenile insanity. Subsequently Kraepelin expanded the term so as to embrace also the hallucinatory form of paranoia or the *Wahnsinn* of other German writers; he reserved the term paranoia, with its German equivalent *Verrücktheit*, for the affection which has been recognized by other alienists as the nonhallucinatory form of paranoia.

This expansion of the term is, I believe, unfortunate, because it includes in a group of juvenile disorders a lifelong adult affection, and one especially distinguished by slowness of evolution and chronicity of course.

Bleuler has invented the name schizophrenia, which he believes to be preferable to dementia præcox. He bases the term schizophrenia upon his interpretation of dementia præcox as a cleavage or

fissuration of the psychic functions. He points out that there is a cleavage of the associations so that the personality of the patient loses its unity; first one, then another psychic complex represents the personality. However, cleavages or fissurations of the personality are not peculiar to dementia præcox. Ordinary confusion presupposes breaks in association; for instance, we cannot satisfactorily explain the occurrence of well differentiated hallucinations, such as voices which address the patient, save on the basis of a well differentiated cleavage of the personality. To maintain, perhaps, that the cleavage or dissociation in dementia præcox is peculiar does not, to my mind, justify giving it so general a term as schizophrenia, for schizophrenic phenomena occur in many forms of mental disease as well as in the neuroses, especially in hysteria. The term schizophrenia should, in my judgment, be rejected as being even more objectionable than dementia præcox.

It will serve our purpose best, i. e., the study of prognosis, to set aside the chronic hallucinatory paranoia (Kraepelin's phantastic form of paranoia, his second form of dementia paranoides), and to embrace under the term of dementia præcox only hebephrenia, catatonia, and dementia paranoides.

Let us briefly now pass in review the essential features which are common to all of these three forms. In my judgment these features may be briefly outlined as follows:

First, there is a gradual onset, usually of the character of a confusion, but sometimes possessing elements of systematization; second, there is present in the early period of the affection hypochondriasis and depression and in the later period expansion; third, in the majority of cases the affection is progressive, the mental impairment steadily increases and terminates in dementia. The mental state is best interpreted as a confusion. There are present, in general terms, the elements of a confusional insanity, i. e., there are present unsystematized, fragmentary, and unrelated delusive ideas, together with hallucinations. In some cases, i. e., the older or paranoid cases, there is present or there is an approach to systematization.

This confusional insanity, probably because of the period of life at which it appears, probably because of the mode of onset, and probably because of the nature of the dementing process itself, presents special features. That the mental state should be one of confusion and that the delusions evolved should at best be but poorly systematized, is not surprising. Irrespective of the possible action of toxins, we must bear in mind the relatively im-

mature condition of the mind of the child at puberty and early youth. Especially do these facts acquire significance when we reflect that in dementia præcox there is often a delayed and defective establishment of puberty. Further, as is now well recognized, and as was shown by Pickett some years ago, statistically, the average age of the paranoid cases is greater than that of the catatonic cases and that of the catatonic cases greater than the hebephrenic. In keeping with these facts, the tendency to systematization is least evident in the hebephrenics, slightly more evident in the catatonics, and most developed in the paranoid cases.

Further, the mode of onset, especially when the latter pursues the more common gradual course, permits of the preservation for a longer or shorter period of a relatively high degree of lucidity; this lucidity becomes impaired only in proportion as disturbed and hallucinatory states, on the one hand, or stuporous states, on the other, are established. In keeping with this are the facts as to the preservation of orientation and the preservation of memory; these faculties are, as is well known, preserved to a surprising degree in many cases. These features of the confusion are common to all of the three forms, hebephrenia, catatonia, and dementia paranoides. Among the other features common to the three forms are, first, the initial period of exhaustion, hypochondriasis, and depression, together with delusions, painful in character. These delusions may consist merely of ill defined notions and feelings; at other times they are very vivid and characterized by ideas of suffering, torture, poisoning, burning, mutilation. Quite commonly they are well marked and dominate the picture, and they indicate more or less clearly the reference by the patient of his sufferings to agencies without, i. e., to agencies in the external world. In the older patients ideas persecutory in character, sometimes vague, sometimes quite well defined, are observed. They are quite frequently accompanied by hallucinations sometimes these are very numerous. Hallucinations of hearing are the most frequent, while hallucinations of the other special senses and of the somatic sense may also be present. In cases that pursue a relatively quiet course they may not be striking or prominent.

Second, the patients pass from the depressive to the expansive period. As a rule the transition is gradual. The depressive ideas become less prominent and expansive ideas take their place. For a time both depressive and expansive ideas may exist together, first one group and then the other being more prominent.

The delusions of the expansive period are on the whole ill defined, frequently changing, fragmentary, and not at all or poorly systematized. They may in various degrees be accompanied by excitement and exaltation and may betray ideas of self importance or consequence. Quite commonly they are puerile, and I think it may be added with truth, that they as a rule betray an intellectual enfeeblement somewhat more advanced than that of the depressive period. The change from the period of depression is seen most typically in the paranoid patients, i. e., the older patients, but both the depressive and expansive phases are present in the younger patients as well. Hecker long ago showed

this to be the case for hebephrenia, and clinical experience, it may be safely asserted, shows the same to be true for catatonia. The slowly oncoming mental change is accompanied by depression to which expansion sooner or later succeeds. The histories of cases are often unsatisfactory as regards the early stage and it therefore happens that now and then a clearly marked depressive phase seems to be lacking. I am quite sure that this is commonly due to the faulty observation or absence of observation by relatives and others at a time when the patient is still without medical observation. That this is likely to be the case when the depressive phase is relatively light and short can readily be imagined.

All of the above features are common to dementia præcox as a whole. The features which distinguish the various forms from each other may be briefly outlined as follows:

As regards hebephrenia it may be stated, first, that the symptoms of dementia præcox are here generalized in type. The characteristics of the more differentiated forms, catatonia and dementia paranoides, are lacking; i. e., there are lacking more or less markedly, on the one hand, the special motor phenomena, the fixation, resistance, negativism, and verbigeneration of catatonia, and, on the other hand, the systematized delusions of paranoid dementia.

Second, as is well known and as was shown statistically by Pickett, hebephrenia is the form met with among the younger patients, i. e., the youngest group of all. Consequently, and as might perhaps be justly inferred, the degree of the emotional departures from the normal is less marked than in catatonia and paranoid dementia. In other words, the depth of the depressive wave is apt to be decidedly less than in the other forms, and this is equally true of the height of the wave of expansion. Sometimes the initial period is characterized merely by a sense of illness, of hypochondriasis, the child complaining of headache, dizziness, obscure bodily distress and sleeplessness, and manifesting a depression relatively moderate in degree. It is more frequently, too, in hebephrenia that the initial period escapes observation, which would hardly be the case if it were pronounced. Again, the expansive phase, while relatively more marked than the depressive phase, may manifest itself more by exuberant and boisterous conduct than by expansive delusions. As a rule, however, both the initial wave of depression and the subsequent wave of expansion are clearly marked, though less so on the whole than in the other forms.

Third, the delusive ideas are in hebephrenia wholly unsystematized, fragmentary, changeable, and transitory. In this particular the contrast is most marked with the paranoid form.

The distinguishing features of catatonia consist in that there are added to the general symptoms of dementia præcox already roughly outlined, definite motor phenomena, spasms, fixed attitudes, stereotyped postures, automatism, negativism, verbigeneration, stupor. Catatonia, according to Pickett's statistical observations, occurs in a group somewhat older than the hebephrenics. In keeping with this fact we find a well marked initial wave of depression and a well marked wave of expansion. The delusions are, as in hebephrenia, unsystematized,

unfixed, varying, changeable, disappearing, though now and then clearly marked paranoid references are met with.

Dementia paranoides presents the general symptom group of dementia præcox and in addition is characterized by the fact that the delusions present distinct evidence of systematization, although this systematization is comparatively feeble. Delusions of persecution, in part confused and disordered, in part coordinated and systematized, now dominate the picture. Hallucinations and delusions alike are painful, and the patient clearly and definitely refers his sufferings to agencies in the external world. In the expansive stage the patient is talkative, boastful, and believes himself to be a person of consequence. Sometimes, as in paranoia itself, he evolves ideas of power and greatness. The various delusions seem to follow without relation to each other. Apparently they are based haphazard upon the hallucinations and upon the misinterpreted sense impressions. Perhaps it is just because they are varied and multiple that the delusions lack the coordination seen in paranoia, and, as might be expected, they lack the fixation of paranoia; the trend of the ideas, however, continues to be the same, and this trend persists during the disturbed period of the affection. The close relations of dementia paranoides to the other forms of dementia præcox is shown, not only by its course and general symptomatology, but also by the not infrequent occurrence of catatonic phenomena, such as fixed positions and resistive and even stuporous states.

The course of dementia paranoides is at times relatively rapid; particularly may this be true of the period of evolution. It is this fact which has led the French writers to describe the affection under such names as *délires systématisés aigus* and *délires systématisés d'emblée*, while the Germans have applied to it such expressions as *acute Verrücktheit*, *acuter Wahnsinn*, and *paranoia acuta*. All of these expressions imply a symptom group which both in its development and progress is much more rapid than that seen in paranoia; indeed, there is a distinct contrast in this respect between paranoid dementia and paranoia, the course of which is, obviously, essentially chronic.

Time will not permit us to discuss the differential diagnosis between dementia præcox and the other mental disorders which occur in the juvenile period of life; it should not be necessary to draw the differential diagnosis between a dementia præcox on the one hand and melancholia or mania on the other hand, nor should we forget that youthful patients like adults suffer from psychasthenias, post-infectious psychoses, confusions, and stuporous states that have no bearing whatever upon dementia præcox. To go into these subjects would take us too far afield. For reasons which I will leave you to imagine, I have purposely refrained from discussing the psychoanalytical interpretation of dementia præcox advanced by Freud, Bleuler, Jung, and their followers.

PROGNOSIS.

With these rough outlines before us, let us turn our attention to the intricate subject of prognosis. The prognosis of dementia præcox is on the whole unfavorable; the following facts, however, which

modify sometimes in a slight degree, sometimes in a great degree the eventual outcome, must be borne in mind: First, the patient may pass through an attack with its phases of depression and expansion and the other attendant mental phenomena without presenting at the end of the attack any recognizable mental impairment. This is distinctly the exception, but it does occur. I have repeatedly observed this result, as no doubt have others in cases that have been of such a character as to permit of extramural treatment, i. e., in cases which it has been possible to treat by rest in bed, by forced feeding, by bathing, by massage and exercise, and, it may be, by other physiological measures.

An increasing clinical experience, however, has shown that the cases in which recovery has apparently taken place, quite frequently suffer a recurrence of symptoms—sometimes after a number of months, sometimes after several years—and that after such recurrence, mental deterioration is usually more or less in evidence. This truth applies not only to hebephrenia, but to catatonia and paranoid dementia as well. It was for a long time thought that the cases of paranoid dementia or acute paranoia, *délires systématisés aigus*, as it was earlier called, not infrequently terminated in recovery. Particularly was this the view of the French writers, who believed that a favorable outcome was quite common. However, the fact of repeated recurrences, each attended in some degree and usually by an increasing degree of mental deterioration, has demonstrated that paranoid dementia is no exception to the general rule; and, as in the other forms, a terminal period of dementia with some persistence of delusions and confusion is likely finally to supervene. This terminal mental loss is usually more or less evident; notwithstanding, cases are met with in which marked mental deterioration does not ensue, even after repeated attacks. The patient, it is true, is mentally somewhat impaired, yet the impairment is at times quite moderate in degree. The patient is often able to live outside of institutions and to conduct himself reasonably well as a member of his household. Thus, a young man of nineteen years passed through a typical attack of hebephrenia. His case was relatively mild, and with the aid of competent nurses, rest, and physiological measures he was treated successfully outside of the asylum, the entire attack lasting something less than a year. At the end of this time he was apparently entirely well. Two years later he entered a business prepared for him by his father, married, and conducted himself in an apparently normal manner. After the lapse of another year, however, it was found that he was not giving the necessary attention to his affairs, and soon that the latter were being badly neglected. It was recognized that he was again not well, and he was as before brought under medical observation. Soon persecutory ideas, ideas of danger, of harm to himself and to others became manifest, and before long he became violently disturbed. His condition was so much worse than at the previous attack that commitment to an asylum became necessary. Here he remained for some eighteen months, when he again appeared to have recovered. He remained in this condition of apparent recovery for a period of some nine years. It should be added, however,

that during this time he never reentered business, never took up any occupation, and that though apparently rational and lucid, he spent his time in idleness, in dawdling, and in trifling pastimes, that he read nothing, that he was indifferent and inactive and also headstrong, obstinate, willful, and unreasonable. Such a condition can hardly be looked upon as a recovery. Further, for a year past, another recurrence of symptoms appears to be establishing itself. The patient has become distinctly persecutory, he believes that he is being disparaged, treated as though he were of no consequence, that the members of his family are taking advantage of him, that he is being abused and ill treated, and he has of late centred upon one member of his family as the cause of all of his troubles. The facts are he is being most generously, even lavishly treated and receives the utmost consideration. It looks indeed as though a paranoia were now about to develop.

Notwithstanding such instances as the foregoing, it must be admitted that cases of dementia præcox may and do end in recovery, especially the milder cases; at least they disappear from view and one never hears from them again. Not infrequently, when they are asylum cases and the patients are dismissed, they are subsequently recommitted to institutions other than the first, and in this way track of them is lost and correct histories are, as we all know, often impossible to obtain. When all is said and done, it must be admitted that the recovery is rarely complete. Quite commonly, even in the most favorable cases, some evidences of mental deterioration—deterioration of general mental make-up, efficiency, and character—are noted, though it must be confessed that sometimes, though rarely, these evidences are very slight and practically nonexistent. Ordinarily, mental impairment is left in recognizable degree; quite commonly this impairment is decided so that at best only a partial or incomplete recovery results. In other cases again, and indeed the larger number, the mental loss is pronounced, and the final result is one of a terminal and chronic dementia; there may for a long time be some mental activity, some persistence of the confusion and delusions of the active period, but finally even these phenomena disappear.

Recovery in a case of dementia præcox, even when approximating the normal level, should be looked upon with distrust. Quite frequently such a supposed recovery is merely, as we have seen, a period of more or less prolonged remission. It is true that all alienists can recall cases of recovery without subsequent recurrence. One such case was studied by myself many years ago; the boy, fourteen years old, passed through a typical and pronounced hebephrenic attack which terminated in recovery. This recovery has apparently persisted, but I have not since had the opportunity personally to examine the patient. Quite commonly the patient passes from out of observation, and we are limited to the rather unsatisfactory account of friends and relatives; or the case is definitely lost to view.

Having laid emphasis upon the unfavorable aspects of the subject, let us now turn our attention to such facts as offer some encouragement. It is found, in the first place, that cases of catatonia of-

fer a distinctly more favorable outlook than the other forms. We can all recall cases in which marked catatonic symptoms were present and in which recovery subsequently ensued. Kraepelin's observations led him to state that the proportion of recoveries is about eight per cent. in hebephrenia and about twenty per cent. in catatonia. While my own experience in regard to recoverable cases would place the figures somewhat higher than this, it all depends upon what is meant by recovery. Kraepelin himself places the percentage of recoveries with impairment much higher. The practical fact for us, however, remains that quite a number of patients get well, most frequently with some traces or evidence of permanent damage.

The second question that confronts us is, Is there any fact which justifies the hope of a favorable outcome in an individual case? Unfortunately the answer that can be returned to such a question is not very satisfactory. It may be said, however, that in addition to the more favorable outlook presented by catatonic cases, we have, first, the relative mildness or severity of the attack. If the attack is mild, so mild for instance that the patient can be cared for outside of an institution, simple rest in bed, with full or massive feeding, bathing, massage, exercise, and other physiological methods, will often yield surprisingly good results. The social condition of the patient, his ability to secure detailed and elaborate care, is therefore also a factor of moment and indeed a very important factor. Under any circumstances, however, and as might have been anticipated, the less severe the attack, other things being equal, the more favorable the outcome, and this is doubtless one explanation of the more favorable results often achieved in extramural treatment.

Second, as a probable factor in the prognosis, is the relative acuteness of onset and course. Cases that pursue an acute and active course presage, other things being equal, a lesser duration and therefore a lessened danger of permanent change. In cases of slow and relatively chronic course, the danger of mental deterioration by the time the attack is over, is, other things being equal, much greater.

Third, the age of the patient is also important. Relatively, early age or youth is proportionately favorable. Unfortunately attacks of dementia præcox, as we know, do not always occur in youth. Sometimes a hebephrenia does not set in until the third decade of life is well advanced; similarly a catatonia may not put in an appearance until the late thirties, or even forties, are reached. Cases of late hebephrenia and of late catatonia offer a relatively unfavorable prognosis; duration is especially prolonged—often for years—and the final outcome is quite commonly marked and persistent deterioration. In regard both to late hebephrenia and late catatonia, I am convinced that the attack observed is frequently not the first attack of mental disturbance from which the patient has suffered; not rarely a careful study of the patient's early history reveals attacks variously diagnosticated as nervous prostration, hypochondriasis, hysteria, neurasthenia, lasting often a year or more. The inference is justified that the observed attack is in reality a recurrence, a recurrence frank and pronounced, but, because it is a recurrence, less promising as regards

the outcome. Further, I think it very probable that an early and perhaps improperly diagnosed attack of hebephrenia may recur years later in the form of a catatonia; the diagnosis then of a "late" catatonia is made. It cannot be sufficiently emphasized that late attacks of dementia præcox, no matter of which form, offer an unfavorable outlook, both as regards duration and final recovery.

The prognosis of paranoid dementia is deserving of another word. Its duration extends over months and years; i. e., the periods of depression and expansion may be completed in the course of several months or a year or two, but the patient, as already pointed out, is frequently left in a condition of persistent and more or less marked mental impairment. Again, as we have seen, the attack does not always, nor necessarily, imply a subsequent impairment or dementia; i. e., the patient, as in the other forms of dementia præcox, may make a recovery. Of this I can recall a remarkable experience and one in which I was able to place the patient in bed and keep him under a persistent course of full feeding and subsequent physiological measures for many months. The young man made to all intents and purposes a complete recovery and has since reentered business. Unfortunately, just as in the other forms, there is in dementia paranoides a well marked tendency to recurrence; months, more frequently several years after the first attack, another may make its appearance. This is apt to be followed by evidences of deterioration more or less marked. Subsequent attacks emphasize the damage, or the affection may assume a chronic form. Repeated attacks are disposed to be of increasing duration.

In conclusion I would like to elicit discussion as to the length of life in cases of dementia præcox and also of the final cause of death. According to my own observations—and these are unfortunately not statistical—as to cases that fail of improvement or recovery, very few of the patients reach middle life. A large number die in the third decade; a smaller number in the fourth, and very few reach the fifth decade. Again, for some time preceding death, tuberculous lesions become evident. In my own observation these lesions do not, as a rule, begin in the lungs, so that the picture of pulmonary tuberculosis is very infrequently presented at first. Much more often do we have the picture of a tuberculosis of the intestines, of the peritoneum and abdominal viscera generally, and of the lymphatics. As a matter of course, tuberculous lesions of the lungs become evident long before the patient dies, but in my observation they are not usually the beginning lesions. The relation between dementia præcox and tuberculosis is a subject of wide possibilities. I am not of the opinion that tuberculosis stands in any causal relation to dementia præcox. The tuberculous infection is probably the result of a terminal diminution of resistance. The fact that it is almost universal, however, in the latter stages of dementia præcox is, to say the least, very suggestive, and the question occurs as to whether these patients do not suffer from dementia præcox for the same reason that they eventually suffer from tuberculosis.

It is with much hesitation that I have ventured to bring this subject before the Psychiatric Society.

After all is said and done, we can speak only in general terms. Each individual case must be studied by itself. The problems of diagnosis are great, but those of prognosis are even greater, and yet how often we wish that we could forecast the outcome in a given case. Bare outlines only, I believe, can be drawn, and if this paper results in a discussion of this interesting subject, my object will have been accomplished.

1719 WALNUT STREET.

THE DIAGNOSTICIAN.

An American Specialist Who Will Come. A Plea for His Establishment Now, and the Elevation of Diagnosis.

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"The World is Becoming Americanized," said Gerhart Hauptmann, this year's winner of the Nobel prize for literature. What does this mean? To an American who has lived abroad, particularly studied as a postgraduate student in one of the foreign universities, the contrast of what America represents compared to what Europe represented is plain. This Americanism is a moving force of progress, but with it there are restlessness, incompleteness, and more or less hysterical development. It is a sort of revolution in the work and thoughts of individuals who enjoy a free leash. In all of the governmental works, arts, and sciences, these individuals are bobbing up and down in a tremendous sea of activity.

The analysis of what this progress means in medicine is not without its points of interest and prophecy for the future. Not many years ago there were only a few clinicians, surgeons, and specialists. The same was true of hospitals and places of learning and research. To-day there are many surgeons, specialists, and research workers and, with the exception of the undergraduate schools, institutions for the progress of medical knowledge have multiplied. The undergraduate schools have diminished in number and, thanks to the activities of the American Medical Association and the Carnegie Foundation Fund, a conscience has awakened in which, while they have diminished in numbers, they have multiplied in their power and scope of teaching medicine. In this, it appears to me, the three most notable advances of recent times in medicine are those which have to do with surgery, the research laboratory, and Röntgenology. There is no question that progress made along these three lines has changed our ideas considerably, but while in former days medicine was as to the personality of each man unto himself and one thus somewhat one sided to the student of medicine, to-day it is distinctly more one sided in a general way than our forefathers had ever had it. We have just gone through an era of shattered doctrines and broken idols, done so by the modern outburst of science and democracy of thought, and to-day, on all sides, the work is uneven and plainly shows gaps in consecutive and cooperative effort, and unpreparedness and inaptness.

The feature which awakens criticism on the part of the laity and the general practitioner in this day of modern times, is the divergence in point of view, a dissociated inimical, almost hostile attitude with which the surgeon, the internist, and the specialist respectively regards the aspects of a given case. As Stockton has so well stated:

Surely, all cannot be right. Where lies the truth? What blindness, what vision, what purpose underlies these several views? The judgment of men disagrees as to questions of politics, of investments, and of medicine. In none of these can the element of purpose, of motive, pass without scrutiny. The general practitioner bearing the responsibility of selection, and not bearing a just proportion of remuneration, occupies a place that begets suspicion, that suggests delay, that leads him to misinterpret candor and baffles his discrimination. The consulting physicians, the men strictly surgeons (and there are such), the specialists, and the general practitioners, severally, are jealous for their own ideals of truth, for their own group, their own interest. Meanwhile the democracy of science, the equality of privilege and of social rights, lead men to emphasize individual importance and the individual advantage. Just to that extent they are blinded as to some aspects of the truth, the home trail, that which leads to the largest advantage of the patient, is obscured. From such divergence there must come a reaction. For the stimulation of initiative, for the development of self-reliance, and the fresh kindling of the torch of knowledge, we should rejoice; but from the egoism that is engendered, from the incompetence that passes at par value, from the corroding selfishness of our nature, we should be delivered. In the awakening of a professional conscience it is plain that arbitration cannot come from the surgeon, the average type of internist, the specialist, or even be made by the general practitioner who should.

With the advance of surgery in America, there are too many men who disregard the opinions of internists, criticize the laboratory, hesitate with the x ray, have not a fair receptive attitude to the specialist, and who depend upon what they call "surgical diagnosis"—a development of America which is as absurd as it is ridiculous. Such men, taking advantage of the lack of danger in exploratory incision, depend too much upon this to make diagnoses for them. This unfortunate development of surgery is greatly due to the teachings of the master minds in it, notably the two best known in America, who teach "a wide incision, expose the parts well, and visually examine."

It must said in fairness to the advance of surgery, that surgeons have met with many deficiencies on the part of men in the other branches. While surgeons deserve a great credit for what has been accomplished in a therapeutic sense and in showing up the deficiencies of their allied colleagues, it can never be an American standard of surgery that exploratory incisions must be made for the purpose of diagnosis. There are two main reasons why: First, the average patient believes that we know more of diagnosis than we do and will not submit to surgical exploration to make a diagnosis in the average chronic and obscure case, and, secondly, that while this may be safe in the hands of the main exponents of it, it is an unsafe doctrine to spread broadcast because it leads to surgical exploitation and lack of interest on the part of surgeons in becoming better diagnosticians. There is no doubt that the average internist in the past and present has been short in coping with cases from a diagnostic standpoint. But, this is also true, wherever an internist exists whose judgment is ripened by ample experience, and who uses

the x rays, the laboratory, and has knowledge of the specialties, this man, providing he works hard with each individual case and takes his time in arriving at a diagnosis, answers to full purpose in a general way, and very nearly in all. But that type of man is to-day far too rare, because such as he must have had such a deep interest in medicine in all that pertains to diagnosis, and have had so many years of the hardest kind of work and experience that the average man becomes tired before this perfection arrives. To him, however, who has held his interest and worked, more than to the surgeon, the specialist, or the general practitioner, belongs the field of diagnosis and all should acknowledge his right to accept the full responsibility for it. Whether he is classified as an internist or as a diagnostician makes but little difference so long as the proper diagnoses are made. But this much can be said, that since the scope of man is limited and time is such a fleeting factor, if he engages in work in diagnosis thoroughly, such a man cannot also encompass the entire therapeutic field unless he is a phenomenon in the art.

It is not transcending the fact that criticism of the literature of medicine may in part help to this desired direction. For instance, the works on physical diagnosis are given over mainly to text pertaining to diseases of the chest and are short in matters dealing with the abdomen from what may be stated as the gastroenterologist's standpoint. They usually include such of the abdomen conditions as are covered by the general hospital clinician, which comprise really the grosser findings, those dealing with enlargements of the liver, spleen, ascites, new growths, etc. Of the works on medicine proper, much can be said in commendation of the excellent ones that have appeared, but they are altogether too voluminous for instruction in diagnosis. The men who have written works on internal medicine are short in knowledge of the x rays and of the laboratory; these being left for special works to cover. This is so because most of these men have radiographers and pathologists in the hospitals to do the work for them. It was this gap between the clinic and the laboratory that brought opprobrium upon the latter, a criticism which once was general, but fortunately now is less often heard. These hospital clinicians may to-day make a defense that they accepted the laboratory diagnosis at its full value and found it deficient. In this they acknowledge their own shortcomings, because it is logical that a person who examines specimens is not as capable of interpreting the findings in a diagnostic way as he who handles the case from a clinical standpoint. The same is true of the x ray. On the one hand, it is the radiographer who, in establishing his position and trying to shorten the gaps in diagnosis, reads more in his plates than a healthy enthusiasm warrants. Why should the x ray men make diagnoses for clinicians if it is not that they are willing and because the clinicians expect and want it of them? No doubt, as mistakes here multiply, improvement will be met with also.

Take the specialty of abdominal work, namely, gastroenterology. Up to a few years ago this was entirely coached along the lines of history, physical and technical examination, and test meal work. How plainly short these have been is shown by the

surgeon and the physiologist. Yet, with the advance that surgery, physiology, the x ray, more extensive work in the laboratory and elsewhere have given, how few are the gastroenterologists who cover their cases thoroughly from a diagnostic standpoint! It is not for me to criticise my colleagues and I have no rod in hand for them; on the contrary, I only speak frankly, for in candor there often comes benefit. Meeting with a considerable portion of this work, I must say my observation shows it to be true that the average stomach specialist does not attain the full heights of diagnosis. It is discouraging, in the light of one professional man's opinion and regard of another and love of his profession, to be called in consultation to see a patient dying of well advanced carcinoma when the person afflicted only a few days before had been examined by a well known gastroenterologist and the case diagnosed as "catarrh of the stomach," this being attested to by him as being on his history files as a definite diagnosis. One could elaborate endlessly upon such unfairnesses to the laity, upon cases of pulmonary tuberculosis that are treated as achylia gastrica, the dyspepsias that are due to gallstones, chronic appendicitis, pancreatic disease, chronic excessive intestinal putrefactions, neurological conditions, and other. It must be plain to all that those who engage in gastroenterological work as a specialty must primarily be the ablest of clinicians, and have all the facilities of diagnosis at their command, and further use them actively in each instance. To show the status of affairs in this specialty, one needs only to read the various books on the subject, and while there is a little difference in the etiology, symptomatology, and differential diagnosis in all of them, basically they are all the same. The difference in the works and interests on the part of gastroenterologists is mainly in their methods of treatment, and while this is important, it is negative to the great main point of medicine, namely, diagnosis.

In the same light may be criticised the ophthalmologist who treats many of the functional derangements of the eye with the stereotyped calomel, salts, and rhubarb and soda; the nose and throat man who looks upon hypertrophied turbinates as an entity in itself rather than consider the main cause, which most often is found in the intestinal canal. The same is true of the dermatologist who still treats his eczemas, erythemas, recurring urticarias, and other obscure conditions by means of the old methods rather than diagnose the cases properly so as to learn the primary condition of which the manifestation in the skin is only symptomatic.

Twenty-one years ago, Dr. Stephen Smith, a distinguished friend of us all, a man who added much to medicine in our country, said on the platform at a meeting in the Academy of Medicine, "I predict that in twenty-five years, the United States will be the medical Mecca of the world." We have four years left, and still it is very probable at the rate that we have gone in the last three, each successively grander, that we may yet arrive at it. Already foreigners are seeking medical knowledge within our shores, and the tide between Europe and America in this matter is certainly nearer to the ebb than ever before. All

about us as individuals are the signs of Americanism in the various walks of life, and still medicine is making a flashy progress here and there, but the rank and file of the men are standing still. Excepting the successes of a few men at the top of the various specialties, there is much complaint. Absolutely apart from deficiencies that this or that man has, conditions have changed between the laity and ourselves, one specialist and another, even between one general practitioner and another, and many seem to be complaining but none reaching out to arrange for the new adjustment of all that is inevitable. As I see it, almost every one seems to be standing still, either criticising some one or thing, or complaining about himself. The ophthalmologists (and some are good ones) say there is no living to be made in this State practising the specialty since the optometry bill became a law, others say it is due to the best men working for a small fee, others to fee splitting, some to going hospitalward and clinicward, and so on. The nose, throat, and ear men, the orthopedists, dermatologists, surgeons, internists, and others, all complain along the same lines. Many of our best men do not hesitate to give information and rather hope for the publication of their bulletins of patients' conditions over their names in the lay press, and still in spirit, while not in words, the code of ethics is against their doing so. There always was a personal rivalry between men engaged actively in practising medicine, but it was mostly noticeable in former days and we have lived through it. To-day, however, such mean tricks do not do other than react against such a man in the end—why keep it up?

As the situation appeals to me, some of the great factors making gaps are the warped organizations that some have reared for their own benefit, utilizing a definite specialty that its leader may have to supply and work up the material for his own desires and subsidizing all other branches for his own benefit; too little attention to diagnosis and too much subtle advertisement in and out of the profession on the part of some for their own benefit, rather than for that of the art of medicine; too many hospitals and clinics with inferior men in them in high positions, and not enough cooperation on a case between them; too much layman influence of a business kind in the administration of our hospitals; too many rival medical schools and too many laboratories of dangerous kinds; too much enthusiasm on the part of some and not enough on that of others; too many unfair laws and not enough good ones; no health bureau at Washington; too many cults, -isms and -pathies; not enough pure brotherly love between us, since this always makes for our own and the patient's benefit; too much interference upon the rights of the practice of medicine by some local and State boards of health; and not enough commingling of the specialties so as to straighten out each on substantial lines for the future.

Drawing a many sided subject to a close it is plain that advance in medicine in America has reached the point where the gaps should be filled. This, as has been suggested, can be done by bringing all of the various kinds of men to a focus or by improving the knowledge of each of them so that there will be a broader scope—both of which

under the conditions that exist in medicine to-day are seemingly impractical. Thus, one of two things is necessary, either that a combination of men interested in the various sides of medicine club together primarily to arrive at diagnoses so that any one of them can cover any scope in the therapy demanded in a case, or that we develop a new department, that, namely, of the diagnostician and consider the specialists as skilled workers in therapy. For this type of man (diagnostician), on whom the future will inevitably shower places, there is now beginning a crying demand. While one cannot be a Jack of all trades, it is possible for any young man who starts out with the ambition to become a diagnostician to arrive somewhere near the goal. This man must start young, be well grounded in learning, preferably with an academic education, and then a graduate from a good medical school and a hospital with a large and general service. After this he must engage in the work that any large city with its various clinics and constant demand for clinical assistants offers. During this time he must become familiar with all that pertains to diagnosis work in the diseases of skin, eye, ear, nose and throat, neurology, internal medicine, surgery, orthopedics, pediatrics, etc. If he is not over keen about learning all there is to therapeutics, he can in the course of a few years, learn his diagnostics well. While engaged in the various clinics in different subjects and under different men, he should be attached to some hospital where he can observe cases under bed observation. If necessary, he can engage in general practice to support himself and help to give him material to examine with all of the various means of doing so he has learned. He would be an excellent general practitioner on the way, who in the course of time will have succeeded well in family practice and will then be ripe for taking up a specialty for definite application. In the selection of this, I would suggest that some such men of to-day take up the specialty of diagnosis, so that when the time comes, as it inevitably will, such men will exist. The people have established the specialists, and the ambition of medical men has followed. In the omissions and commissions seen on the part of different men in the various branches, medicine is now calling for diagnosticians. In the future this want will become greater rather than less, and it will not be many years when the people will demand them. Let us in this instance be progressive enough to see this emergency coming, and have men capable to meet it when it arrives.

126 EAST SIXTIETH STREET.

THE HISTORY OF BLOODLETTING.*

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Someone has said that when prehistoric man first hit upon the expedient of picking up a stick or a stone with which to smite his fellow man, he had already made his first step in the direction of civilization. If he drew blood on that momentous occa-

sion, in some degree short of manslaughter, we should already have an instance of bloodletting. It was in some such empirical way as this that early man first chanced upon venesection as a reliable mode of treatment in the relief of human suffering, through witnessing the revulsive effects of some accidental hemorrhage upon bodily ills. The natural and periodic process of menstruation, no doubt, directed the medical mind to the hygienic and prophylactic advantages of depletion; but we can as little credit Pliny's fable of how the Egyptians learned to open a vein from watching the clumsy hippopotamus wound itself against the reeds as that other bit of nature-fakery of the old naturalist which asserts that they assimilated the use of the enema from seeing the ibis achieve a species of autoclyster by means of its bill. Bloodletting is one of the oldest and most common of therapeutic devices and its origin is lost in antiquity. We know, from Max Bartels and other writers on primitive medicine, that savages have used sharp thorns or roots, fishes' teeth, or sharpened stones for opening abscesses, couching cataracts, or letting blood; that scarification was resorted to, that cupping was done by means of animals' horns, and that, in connection with the general idea of depletion, the North American Indians had fixed periods, such as the "green corn feast," for ritual emesis and purgation, even as our forefathers used Purgation Calendars and Bloodletting Calendars to determine the proper time and place for these operations under the signs of the Zodiac, or as those of only one generation ago went to the old country doctor every spring to have their veins opened. Of the ancient Egyptians, Herodotus says, "They purge themselves every month, three times in succession, seeking to preserve health by emetics and clysters; for they suppose that all diseases to which mankind are subject proceed from the food they use." We learn from the papyric writings that venesection was a common practice among the Egyptians, and, on account of their religious horror of mutilating the human body, was the only surgical procedure permitted by them, with the exception of circumcision. Upon the doorposts of a tomb in the cemetery near Memphis, discovered by Mr. W. Max Müller,¹ we have the earliest known pictures of surgical operations representing circumcision and two figurations of operation on the foot and neck, the attitude of the patients indicating great pain, the hieroglyphics reading "Why do you hurt me thus?" In the light of the Egyptian restrictions of surgical procedure, it is not unreasonable to suppose that these incisions in the neck and extremities may have been the earliest representations of bloodletting, of date about B. C. 2500.

The Babylonians, in keeping with the ancient passion for prediction and prognosis, tried to make special inferences from the appearance of the blood drawn in venesection, which reminds us of the common assumption in early nineteenth century practice that "buffing and cupping" of drawn blood was a sign of inflammation.

There are apparently no references to bloodletting in the Bible, but from the Talmud, the Hebrew

*Read before the Medical History Club of Washington, D. C., December 30, 1911.

¹Described by Dr. James J. Walsh in *Journal of the American Medical Association*, xlix, 1593, 1907.

law book, we learn that venesection, cupping, and leeching were well known among the Jews at the time of its composition, about the second century, A. D.; and it is fair to assume that they were known before that time. If bloodletting was at all practised by the ancient Hebrews, it is possible, if not probable, that it was done with the kind of sharp stone or primitive knife with which Zipporah, the wife of Moses, in the second book of Exodus, "cut off the foreskin of her son." The fact that primitive stone knives were employed by the ancient Egyptians in embalming and by the Hebrews in ritual circumcision shows the extreme veneration in which these rude objects were held, for they go back to the palæolithic period of man's development. In the Hall of Anthropology in the National Museum at Washington one may see hundreds of specimens of these leaf shaped flints, the sign and symbol of prehistoric man's uplift. In a most important contribution to American archæology, Professor William H. Holmes,² of the Bureau of Ethnology, has demonstrated inductively (by working out the initial methods of chipping and flaking, himself) that even among the recent American Indians of the Piney Branch or other quarries all over the United States, the process of shaping and specializing the leaf shaped celts from oval or ovoid stones was probably not different from that employed by palæolithic man or even in what seem to be the rude artefacts of eolithic man. Throughout geological space and time, the leaf shaped flint knife has remained the same in shape and intention whether as weapon, tool, or ceremonial object, but it is the rough hewn knife, sharpened as to edge and point by accidental flaking that forms the true connecting link between prehistoric man and the evolution of surgery. In the excavations of the Swiss lake dwellings, which were discovered in 1853, the different cultural objects were found in separate layers, from the Stone Age up to the Copper and Bronze Ages, and of these, the real beginnings of northern European culture are now held to be the bronze implements and objects found at La Tène. On the continent of Europe, the phrase "La Tène" has become a sort of shibboleth among anthropologists for the starting point of the north European culture which followed upon the three Ice Ages, with their two interglacial periods, and this, not because the lake dwelling finds are necessarily the earliest bronze objects known, but because they are the most representative and characteristic. The La Tène finds, of date about B. C. 300, entirely distinct from Egyptian, Greek or Indian culture, include earrings of Etruscan or West Celtic pattern and funeral urns containing human remains, showing that cremation was the rule among these people. Some time later, as, for example in the Gallo-Roman finds in France, we trace the evolution of the articulated surgical instruments, like scissors, in which cutting was done by indirect action. The interesting point is that primitive north European culture, up to the La Tène period, was discontinuous, being interrupted by the three glacial periods, while Greek culture up to the Age of Pericles, two hundred years before,

was probably a continuous development, the cutting instruments of metal having been specialized in this Southern country as in Egypt or India, before the time of Hippocrates. The date of the La Tène period (B. C. 300) brings us to an interesting phase of the subject, namely, bloodletting among the ancient Hindus. It is not positively known whether the Hindus learned their practical surgery and medicine from the Greeks at the time of Alexander's Indian expedition (B. C. 327) or whether Greek travelers, possibly Hippocrates himself, learned something from them, but this is certain that the *Susruta*, the great canon of Indian surgery, reveals a wonderful knowledge of operative procedure and an extraordinary specialization in the matter of surgical instruments. Nearly all the major surgical operations were performed, except the ligation of arteries, and about 121 different surgical instruments were described, including lancets, scalpels, saws, scissors, needles, hooks, probes, directors, sounds, forceps, trocars, catheters, syringes, bougies, and a rectal speculum. The cutting instruments were of steel, sharp enough to cut a hair and kept clean by wrapping in flannel in a box. Now the remarkable thing about Hindu bloodletting was the way in which venesection or any other cutting operation was taught. Having no anesthesia, the Hindu surgeons recognized that it was necessary to be swift and sure in incision, and accordingly they first had the young student go through the motions, as it were, on plants. To this end, the veins of large leaves or the hollow stocks of water lilies were punctured and lanced, as also the veins of dead animals. Gourds, cucumbers, melons, and other soft fruits or even leather bags filled with water were tapped or incised, all with the idea of giving a fearless surety and precision in attack, after which the student could proceed to the cadavers of animals and the living subject.³ This method of teaching surgery, which might well be adopted in our own medical schools, was actually employed to some extent in England in the first half of the nineteenth century and, like hypnotism and the "British army bamboo splint," was probably imported by the Anglo-Indian surgeons. Some readers may recall the amusing example in Captain Marryatt's *Japhet in Search of a Father*, in which Mr. Cophagus, the apothecary, teaches the fatherless Japhet to do venesection by the Indian method. "He also taught me how to bleed by making me, in the first instance, puncture very scientifically all the larger veins of a cabbage leaf, until, well satisfied with the delicacy of my hand and the precision of my eye, he wound up his instructions by permitting me to breathe a vein in his own arm."

Medicine as a science began among the eager, imaginative, quickminded peoples of Ionia and the islands, and the first textual record of bloodletting in European practice is to be found in the work of Hippocrates. The Hippocratic writings, as we know, are not an individualized treatise on medicine and surgery, like the works of Galen or Celsus, but a scripture or canon, not unlike the books of the Old Testament, the work of several writers, some of whom lived before the Father of Medicine, some

²W. H. Holmes, *Stone Implements of the Potomac-Chesapeake Tidewater Province, Report of Bureau of Ethnology, 1893-4*, Washington, xvi, 1-152, 1897.

³*Encyclopædia Britannica*, 11th edition, xxvi, p. 125.

after him. The genuine writings of Hippocrates were all written in Ionic Greek, and, in the opinion of great scholars like Littré, the treatises on Regimen in Acute Diseases, and Ulcers, our principal sources for Hippocratic bloodletting, are beyond question authentic. Hippocrates was undoubtedly a far greater surgeon than Galen, but in clinical medicine his principal business was the portrayal of the signs and symptoms of important diseases, and for this reason it is customary to slur him over as a therapist, more especially by comparison with Galen. The latter, with the experience of centuries to draw upon, was naturally far more clever in getting his patients well, but that Hippocrates was no laggard in the treatment of disease is evident from the large number of drugs mentioned in the canon, nearly 200 in all, from his careful dietetic scheme, and especially from the fact that his principal service to therapeutics was just along the lines for which the selective, discriminating power of Greek intelligence has been justly famous, namely, in fastening upon what is essential and in throwing out the superfluous. This is precisely the object of the treatises on Regimen in Acute Diseases and what Hippocrates has to say about bloodletting goes straight to the point:

Bleed^a in the acute affections, if the disease appears strong, and the patients be in the vigor of life, and if they have strength. . . . Hypochondria when not due to retention of gas, tension of the diaphragm, checked respiration, with dry orthopnea and no formation of pus; more especially intense pains in the liver, heaviness of the spleen, and other phlegmasiæ and intense pains above the diaphragm, diseases connected with collections of humors—none of these diseases admit of resolution if treated at first by medicines, but venesection holds the first place in conducting the treatment. . . . When a person suddenly loses his speech, in connection with obstruction of the veins, if this happen without warning or any other good reason, one should open the internal veins of the right arm and abstract blood more or less according to the habit and age of the patient. Such cases are mostly attended with the following symptoms: Redness of the face, eyes fixed, hands distended, grinding of the teeth, palpitations, jaws fixed, coldness of the extremities, retention of air in the veins [congestion of the brain preceding apoplexy or epilepsy]. . . . In epilepsy or apoplexy, the patients having been first fomented are immediately to be bled at the start while all the peccant vapors and humors are buoyant, for then the cases more easily admit of a cure. In quinsy with convulsive suffocation, the tongue turning livid and hard, bleed in the arm and open the sublingual vein and purge with electuaries and give warm gargles. Peripneumonia and pleuritic affections are thus to be observed: If the fever be acute with pains on either side or both, if expiration be painful, if cough be present and the sputa yellow or livid in color or otherwise thin, frothy, and florid, let the physician proceed thus: If the pain pass upward to the clavicle, the breast, or the arm, the inner vein in the arm should be opened on the affected side and blood abstracted according to the habit, age, and complexion of the patient and the season of the year, and that largely and boldly, if the pain be acute, so as to bring on fainting, after which a clyster is to be given. But if the pain be below the chest and very intense, purge the bowels gently and during the act of purging give nothing.

In his treatise on ulcers, Hippocrates shows how to check accidental hemorrhage after venesection or cupping; how to relieve the soreness after scarification, and points out the most common accident of venesection, namely phlebitis. He adds that "Venesection is to be practised when the person

has dined or drunk more or less freely and when somewhat heated and rather in hot weather than in cold"; also, "When the cupping instrument is to be applied below the knee, or at the knee, it should be done, if possible, while the man stands erect."⁵ It is a matter of comment that there is no mention of bloodletting in the famous surgical treatise on Wounds of the Head, but one of the aphorisms says, "When a man has pain in the back part of the head, he will be benefited by having the straight vein in the forehead opened." And we know that Ambroise Paré practised venesection in head injuries on the authority of the Father of Medicine. Such are the Hippocratic rules for bloodletting which became the basic principles for its practice in aftertime.

Greek medicine was established in Rome by Asclepiades of Prusa, who opposed the humoral pathology of Hippocrates and his ideas about the healing power of Nature. Professor Huxley relates that he was once talking with an eminent, fashionable physician about the *vis medicatrix nature*, when the latter replied: "Stuff! nine times out of ten Nature does not want to cure the man; she wants to put him in his coffin!" Asclepiades was a fashionable physician of this kind. He believed in systematic interference with morbid processes, and, in a well worn phrase, referred to the clinical observations of Hippocrates as "A meditation on death." Yet his actual therapy, when he came down to cases, was not very different from that of the Coan physician, and was limited to such strenuous expedients as diet, massage, hydrotherapy, gymnastics, and a little wine, in short, what we now call physiological therapeutics. He was opposed to drastic purgation and emesis, but favored bloodletting, the principal indication being the relief of pain.

Celsus regarded bloodletting as a principal means of extracting morbid material from the body, and he begins his very concise chapter on venesection⁶ with the following sentence: "It is not a new practice to let blood by the incision of a vein, but it is new to embrace this remedy in almost every disease." This statement shows the direction in which things were moving at the time of Celsus and, having made it, he advances at once to the common sense standpoint that the true indication is not the disease or condition of the patient, but whether the patient is strong enough to be bled. In all doubtful cases where there is no time for hesitation, as "in paralysis, loss of speech, suffocative angina, or between two violent febrile paroxysms," it is better to try a doubtful remedy than none at all, but to let blood during the violence of a fever, in the acme of its paroxysm, is deliberate homicide. Wait for a remission, yet, failing this, the last resort is still not to be omitted. Celsus follows Hippocrates in recommending that the vein be opened on the same side as the lesion, but he intimates that the other method, the so called derivative bleeding, on the opposite side or as far away as possible from the lesion, was already coming into vogue. This was to be the special feature of Arabian practice

^a*Ibidem*, ii, 306.

⁵Hippocrates, *Genuine Works*. Translated by Francis Adams, New York, 1886, i, 261, 262, 269.

⁶Celsus, *On Medicine*. Translated by Alex. Lee, London, pp. 99-106, 1831.

in later centuries and may have come originally from the East. Celsus is also at one with Hippocrates in the idea that bloodletting is good if the drawn blood is thick and dark—the buffy coat idea—but, if it is red and clear, it is a sign that the bleeding should be stopped immediately. Finally, what Celsus says about the necessity of proper instruction in bloodletting shows the wisdom of the ancient Hindus in practising upon the veins of plants.

Although venesection be very easy to a practised man, yet to the unskillful it is most difficult. For the vein being joined to the arteries, and the nerves to these, wherefore if the lancet should touch the nerve, convulsions ensue, and that cruelly destroys the man. But a wounded artery neither unites nor heals, sometimes it causes profuse hemorrhage. Also if the vein itself happen to be divided and the extremities by chance compressed, no blood is emitted. But if the lancet be thrust timidly, it lacerates the skin without opening the vein. Also the vein sometimes lies hidden, neither is it easily discovered. Thus many things concur to render this a difficult operation to the tyro, which is very easy to a scientific physician.¹

Galen was a great and resourceful practitioner, noted for the extreme cleverness of his prescriptions and his remarkable originality in treatment, as where he recommends, for the first time in medical history, the milk diet and sea voyages for phthisis. As the archcommentator on Hippocrates, it was natural that he should be very expansive on the subject of venesection, to which, in fact, he devoted an elaborate treatise. He was the first to introduce the quantitative idea in bloodletting, recommending from seven ounces to one and a half pound as a normal quantity to be extracted in the average case. Like all the Greeks, he was opposed to derivative bleeding and sometimes even opened an artery. He carried bloodletting into a great variety of conditions, among them diseases of the liver and spleen, sciatica and coxalgia, insanity and melancholia, rheumatism, fractures, hemorrhages, and cerebral irritation, and it was probably upon Galenical authority that the practice was extended to almost every ailment in later times.

Rufus of Ephesus, who was the first to describe bubonic plague, employed bloodletting in his treatment of the disease.

Aretæus the Cappadocian is usually supposed to have lived about the same time as Galen, or perhaps even later, because his descriptions of disease are the most complete and graphic of all the Greek writers, and his literary style has that ornate, elaborated character which is usually regarded as the sign of a period of social decadence. At all events, he wrote the best treatise on practice of medicine in antiquity, and his wonderful clinical pictures bring the Greek period to a splendid close. Aretæus, like Galen, recommends bleeding in a long array of diseases, not only in epilepsy, pleurisy, and the anginas, but in intestinal obstruction, tetanus, diseases of the bladder, satyriasis, suppression of the urine, hemicrania, and hemoptysis; and, with him, venesection is highly specialized, the blood being drawn from the frontal vein in headache, epilepsy, and vertigo, from the veins of the tongue in throat affections, from the nasal veins in hemoptysis and headaches, with scarification at the pubes or venesection of the ankle in cases of hysteria.

This was the beginning of the complex system of "points of election" which was afterward a special feature of the bloodletting calendars. Aretæus, like Galen, also indicates the quantity of blood to be let, about half a pint or more in headaches, for instance.

During the Dark Ages, which for medicine we call the Byzantine period, the science of physic was put into very cold storage. As Sir Clifford Allbutt says: "The chief monuments of learning were stored in Byzantium until Western Europe was fit to take care of them." The most important writer who has been preserved in the Byzantine texts was the great surgeon Antyllus, who gives most careful directions as to the technic of venesection and himself sometimes opened the occipital, auricular, frontal, and temporal arteries. The famous Antyllus operation for aneurysm, which consisted in ligating above and below the sac and then cutting down and evacuating its contents, was, in reality, a mode or subvariety of bloodletting.

The Arabians, as devout followers of Galen, were enthusiastic bloodletters, whether on the battlefield or at the bedside, but their clinical practice had the novel feature that venesection was required to be derivative, on the opposite side from the lesion, against the old Hippocratic rule of revulsion. This opposition between derivative and revulsive bleeding let, as we shall see, to a controversy of phenomenal dimensions in the sixteenth century.

Medieval medicine—medicine under the Christian church—had its origins in the School of Salerno, the earliest literary production of which was the *Regimen sanitatis*, or Code of Health, a twelfth century poem, composed for the benefit of King Robert of Normandy, who was cured of a wound at Salerno in 1101. The *Regimen sanitatis* consists of a number of wise laws relating to diet and personal hygiene, written in Latin hexameter verses with concealed rhymes (the so called leonine verse), each stanza being detached from and independent of the others, like so many beads upon a string. This poem, which passed through some 240 different editions and was translated into the known languages, winds up with a special section on bloodletting, illustrating the Salernitan practice, largely derived from the Arabic writers. The Latin poem itself is by no means what the Germans would call a "right royally pitiful rhyme," for the diction is elegant. It was translated into English five times and the subjoined quotation is from the amiable version of Professor John Ordronaux:

93.

Of Bleeding and of the Age of Bleeding.
Ere seventeen years we scarce need drawing blood;
High spirits fall by tapping life's own flood.
Wine may restore a wanted joyous mood,
But loss of blood is late repaired by food.
Bleeding the body purges in disguise,
For it excites the nerves, improves the eyes
And mind, and gives the bowels exercise.
Brings sleep, clear thoughts, and sadness drives away,
And hearing, strength, and voice augments each day.

94.

In what Months it is Proper, and what Improper to Bleed.
Called lunar, are September, April, May,
Because they move beneath the Hydra's sway.
Two days—September first, May thirty-first—
For bleeding and for eating goose are cursed.

¹*Ibidem*, 104-105.

When blood abounds in full age or in youth,
May'st bleed in any lunar month, forsooth;
Yet chiefly in September, April, May,
Bleed freely, if you would prolong life's day.

95.

Of Obstacles to Bleeding.

Cold nature, clime, or when some sharp pain laces;
And after baths that follow love's embraces;
In youth, old age, amid disease's traces;
Or when of food a surfeit overplies
The stomach, and to constant qualms give rise,
Then letting blood is truly most unwise.

96.

Circumstances Relating to Bloodletting.

Whatever amount of blood you wish to let,
Or great, or small, these rules do not forget:
A bath, inunction, cord, the arm to bind,
Some wine, a stroll; lose never these from mind.

97.

Of Some Effects of Bloodletting.

Bleeding soothes rage, brings joy unto the sad,
And saves all lovesick swains from going mad.

98.

Of the Size of the Wound in Bloodletting.

A medium sized incision always make,
Whate'er amount of blood you wish to take;
The copious vapor rising sudden, flees,
And thus the blood escapes with greater ease.

99.

Things to Be Considered in Bloodletting.

When one is bled he should for full six hours
Most vigilant maintain his mental powers,
Lest fumes of artful slumber too profound
Should all his mortal nature sadly wound
For fear that thou some slender nerve shouldst mar,
Conduct not the incision deep nor far;
And being purged through blood, and thus renewed,
Haste not at once to sate thyself with food.

100.

Things to Be Avoided after Bleeding.

All things from milk as are in gen'ral made,
And draughts of wine, of whatsoever grade,
Should every one dismissed, avoided be
By recent subjects of phlebotomy.
Cold things are also hurtful to the weak,
Nor let them, dauntless, brave damp skies or bleak;
For vigor only comes once more to these
From sunshine mingled with the passing breeze.
To all rest proves an everlasting gain,
While exercise occasions certain pain.

101.

In what Diseases, Ages and Quantities Bloodletting Should Occur.

Acute disease, or only so in part,
Demands bloodletting freely from the start.
In middle age, bleed largely without fear,
But treat old age like tender childhood here.
In spring you may bleed doubly at your pleasure—
In other times alone in single measure.

102.

What Parts Are to Be Depleted and at What Seasons.

In spring and likewise in the summer tide,
Blood should be drawn alone from the side.
In autumn sere, or on cold winter's day,
Take from the left in corresponding way.
Four parts distinct we must in turn deplete—
The liver, heart, the head, and last the feet.
In spring the heart—liver when heats abound,
The head or feet, when'er their turn comes round.

103.

Of the Benefit of Bleeding from the Salvatella vein.*

To mortals there will come superior gain,
From tapping off the Salvatella vein;
It frees the voice, spleen, liver and the chest,
And heart, where'er abnormally distressed.

*In the little finger.

It is clear from these Salernitan precepts that bloodletting had already become a prophylactic as well as therapeutic device, and, as a definite part of personal hygiene, it became, in due course, immensely popular with the masses. Astrological influences were already creeping in and the time for venesection was soon to be set by the conjunctions of the planets. But the most interesting feature of bloodletting in this period was the evolution of an entirely new figure in the history of medicine—the barber surgeon. There were great surgeons in the Middle Ages, such as Hugh of Lucca and Theodoric, the pioneers of anesthesia and asepsis, Saliceto, Lanfranc, Guy de Chauliac, Mondeville, yet it cannot be denied that the general practice of surgery, and consequently of internal medicine, fell into what Allbutt styles “unexampled and even odious degradation,” partly through the medieval schism between medicine and surgery which had obtained since Avicenna's time, partly on account of certain restrictions which the church had to put upon surgical practice by priests and clerics, partly by reason of the many social and legal restrictions which feudal authority put upon both physician and surgeon,⁹ partly because the feudal lords of earth were in position to kill if the surgeon failed to cure, and largely, no doubt, on account of the almost stationary cast of the medieval mind, not to mention the ignorance and incompetence of many of the surgeons themselves. Among the Greeks, the surgeon was held in highest honor. In medieval times, Church and State were not specially enthusiastic about him, and the medical scholastics, those amazing examples of the “discontinuous mind,” affected to look down upon him, although far inferior in first hand knowledge of their profession. It was a case of “give a dog a bad name,” with the result that the general practice of surgery fell into the hands of barbers, bath keepers, sow gelders, and the strolling “incisors,” who, as like as not, put out an eye in couching for cataract, butchered the viscera in cutting for stone, or in attempting to effect a radical cure for hernia, often, as Baas puts it, excised “the radix of humanity itself.” No doubt the self made, outcast surgeon, not properly bred up and educated to his calling, must bear his part of the blame. We find all the leading surgeons of the period—Lanfranc, Guy de Chauliac, Mondeville—giving very shrewd and straightforward advice to their professional brethren as to the necessity of dignified and straightlaced moral conduct in private houses. They were not to flirt with the lady of the house or to ogle the maidservants, under pain of losing several cubits from their professional stature and possibly their practice. Again, the laws of the Visigoths, the basis of the old Spanish medieval law, state explicitly that “No physician may undertake to bleed a woman in the absence of her relatives; that whoever touched the hand, arm, or breast of a maiden was to be fined; and that if a physician injured a nobleman in bloodletting, he was to be fined.” It is plain that immorality and incompetence were common enough among the medieval surgeons of lower caste. The deplorable thing about the whole matter was that, for centuries, the rank and file of sur-

⁹These have been carefully studied by Sir John Tweedy in *Medical Magazine*, London, xix, 701-706, 1911.

geons were under a sort of social ostracism. An English surgeon once said of John Hunter that "He alone made us gentlemen," and, even in protestant Prussia, up to the time of Frederick the Great, it was the duty of the army surgeon to shave the officers of the line. In medieval times, the barber surgeon attended only to bleeding, cupping, and the dressing of wounds. Medieval surgery was, in fact, merely "wound surgery," and even in such a slight solution of continuity as bloodletting, it was the practice to give a "wound-drink" to strengthen the patient. The major operations were in the hands of specialists, often hereditary in certain families. Internal medicine was in the hands of scholastics, whose knowledge of Greek medicine was derived almost entirely from translations into Arabic, Hebrew, or other Oriental languages. Renan, as cited by Allbutt, speaks of a medieval university text book, an edition of Aristotle, which consisted of a Latin translation of a Hebrew translation of an Arab commentary upon an Arab translation of a Syriac translation of the Greek text.¹⁰ It was under such influences as these that the medieval physicians began to give up the old Greek practice of bleeding upon the affected side in favor of the Arabic method of derivative bleeding upon the opposite side. All the clinical writers of the period, the so called Arabists, Gilbert of England, Peter of Abano, Arnold of Villanova, Gentilis of Foligno, Bernard de Gordon, Valescus of Taranta, even Savonarola, speak in favor of derivative bleeding, and, in connection with the University of Montpellier, which was always under Arabic influences, the practice became common in France and was duly approved by the Paris Faculty. How powerful the Paris Faculty was in the sixteenth century, how it made surgeons and barber surgeons crawl and knuckle under, how it called down curses upon heretic physicians which sounded like the anathemas and excommunications of religion, we all know. There is always a lingering suspicion that the general medical profession of these times needed stirring up with a pole, and they got it in some measure from Vesalius and the Greek scholars who poured into Europe after the destruction of Constantinople in 1453, shortly after the invention of printing. These men, in the words of Knott, were literally "sowers of dragon's teeth," and the new ideas they introduced caused a great fermentation of medical heresies and the inevitable persecution of heretics. It is said that there are always three stages in the introduction of a new idea: First of all, people say, "It is not true"; second, "It is contrary to religion"; finally, "We knew it all before." And so it happened that in the year 1514, one Pierre Brissot, a learned physician of Paris, who was deeply read in the Hippocratic writings, came out in defense of the old Greek practice of bleeding on the same side as the lesion, because, from his own experience, revulsive bleeding did most good, since it removed the bad blood in a more direct manner. Immediately upon this pronouncement a storm of controversy broke loose over Brissot's head. The Paris faculty, as usual, declared him to be a medical heretic, revulsive bleed-

ing was forbidden by act of Parliament, and three years later (1518) Brissot was induced to take a little journey into Spain and Portugal, ostensibly to study the strange and rare properties of medicinal herbs of the New World, but, in reality, because it was in his interest to come off with a whole skin. As in the case of Vesalius, Spain was a genial clime for heretics in those early years. The faculty of Salamanca declared in favor of Brissot, but in Paris the controversy raged fiercely long after his death, in 1522, and even the Pope and the Emperor (Charles V) were dragged into it. Then came the anticlimax of this teapot tempest. A relative of the Emperor's, who had been bled by the Arabic method, during an attack of pleuropneumonia, suddenly died. Confusion reigned in the Arabic camp and the whole edifice of controversy collapsed like a puff ball. The Brissot affair illustrates how purely theoretical was the practice of medicine in the sixteenth century, and for sheer absurdity might be paralleled by an occurrence in the seventeenth century which is related by that jovial historian of medicine, Johann Hermann Baas:

In Heidelberg, about the middle of the century, there arose at the bedside of the Margrave of Baden a difference of opinion between two learned professors and the ordinary physician—at all events also a *medicus purus*—whether a plaster for the illustrious Margravian heart, in order to cover that organ, should be placed in the middle of the chest, according to Galen, or upon the left side. The dispute was settled by opening before the eyes of the noble patient—a hog—by means of which it was demonstrated that, as a matter of fact, the heart of the hog lay on the left side. This evidence so firmly convinced His Excellency that his own internal arrangements were quite the same as those of a hog, that he at once dismissed his private medical attendant for daring to hold a contrary opinion as to the position of a nobleman's heart.

(To be concluded.)

NEWER TEACHINGS OF DISEASES OF GASTROINTESTINAL CANAL.

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VI.

EXAMINATION OF THE STOMACH CONTENTS.

We are now ready to enter upon the discussion of the examination of the functions of the stomach. As already mentioned, the two chief coats of the stomach have each a different and distinct function. The function of the muscular coat is to perform muscular work; the muscular coat, therefore, has a mechanical, a dynamic function. The function of the mucous coat is to secrete the several juices which act on the food introduced into the stomach; consequently the function of this structure is of a chemical nature. It is our aim to get the evidence as to the working of these two coats and we accomplish this by means of what is called the test meal. The test meal must have all the qualifications of a test, that is, the parts which enter into the performing of the test must all be of definite and known quantity. Otherwise the entire test meal fails of its purpose. Unfortunately, this diagnostic means is handled not only by the profession,

¹⁰Sir T. C. Allbutt. *Science and Mediaeval Thought*, p. 69, London, 1901.

in general, but even by those who profess to be specialists, in a rather slipshod manner. If we are to deserve the respect of our colleagues and of the public, we must attempt to be as nearly perfect as possible in accordance with all sciences applicable in this special branch; and the sciences most pertinent in the examination of the test meal are the sciences of physics and of chemistry. It would be well and most useful to all concerned to impress upon our minds, that these sciences demand the most rigorous exactness in all procedures, and that guesswork is never permitted in the solving of any problem in physics or chemistry. It would seem that this admonition were superfluous, yet it is a fact that the physician very soon forgets to apply the principles of physics and chemistry which he once learned. In the test meal examination we must proceed from a more solid basis. The several steps in our examination must each and all be subjected to the exactest scrutiny and each of the component steps must itself comply with the severest test of science.

The component parts which are necessary for the examination of the function of the stomach, are the test meal and the reagents. There are several test meals proposed, varying with the vanity of the proposer, who wishes to have his name immortalized, but the Ewald-Boas test breakfast answers all purposes. This test meal consists of thirty-five grammes of white bread and three hundred c. c. of pure water. To be sure, this test meal is a very arbitrary one and anything else might be chosen; but it is certainly desirable that there be uniformity in the selection of a test meal. Let us adhere to this test meal until weighty reasons be advanced in favor of another meal; so far none have appeared. Let us be sure of the quantity of the roll and of the water. As we are to draw definite conclusions from the quantity of chyme which we aspirate from the stomach after the test meal has been taken, therefore, in order that we be correct in our diagnosis, we must be absolutely exact in the quantities which we have the patient take.

It is inexcusable negligence to tell a patient to "take a slice of bread and two glasses of water." A slice of bread varies with the size of the loaf, with the custom of a particular family, and with the appetite of the one who is to get the bread. What may weigh thirty-five grammes in one case, may be much less or much more in another. And, naturally, the quantity of aspirated contents will vary with the quantity which the patient eats; the more he eats, the more will be aspirated, and the less he eats, the less will be aspirated. Again, a glass of water may hold any number of cubic centimetres, and the glass which is used in one household may often vary in size from the glass which is used in another. We, therefore, must see the fallacy in employing indefinite quantities as a test meal, when our diagnoses are to be gauged by the quantity which we aspirate after the test meal. Again, according to the old and faulty conception, it is permissive to use black tea instead of water with the bread. The use of black tea is to be condemned for more than one reason. What is black tea? Teas vary very much in chemical constitution, in quality, in the extractives which they contain. Which special tea is to be employed? Shall it

be a decoction or an infusion? What shall be the relative quantities of tea and water to be used in the preparation of the tea? How long shall the tea leaves be permitted to remain in contact with the water? Those are all vital questions to a scientific man, and must not be ignored if a standard potion is to be used. And, if we are not to use a tea of a standard type, why use it at all? It is nothing new and has long been known, that tea has a certain stimulating, exhilarating influence upon the body in general,—such is the teaching,—therefore tea is not plain water. Has it been demonstrated to a certainty, that tea has no influence upon the stomach? My researches have taught me that tea has a decided influence upon the stomach; it certainly contains organic acids, and by taking tea we introduce organic acids into the stomach. We shall subsequently learn of the great influence of the organic acids in the alimentary canal. We shall learn that the presence of organic acids in the alimentary canal, in certain conditions, plays a very great rôle and we must therefore avoid the introduction of organic acids with our test meal. In my practice I have used no other than the bread and water test meal, except as will be mentioned further on. I myself weigh off the bread and measure off the water and the patient eats in my presence, or in a room adjoining my consultation room. The very eating of the test meal often offers mute evidence. Some patients take but a minute or so, while others consume ten to twenty minutes to get through with the test breakfast. We are thus enabled to learn the disposition of the patient. After the patient has finished his test meal he waits one hour. Here again absolute exactness as to the time the patient has to wait is most urgently needed. The longer the patient waits, the less chyme will the stomach yield on aspiration, and conversely, the less the patient waits after the test meal, the more chyme will be aspirated. Also, the patient should be at rest after eating the test meal. The body at rest and in motion has a different influence upon peristalsis. Therefore I have the patient remain in my waiting room perfectly at rest for one hour. This explains another grave fallacy which permits the patient to have his test meal at his home and then come to the physician's office to await his turn, which again might protract the waiting time beyond the hour.

One hour after the test meal has been taken, we introduce the stomach tube and attempt to aspirate the stomach. This presupposes our ability to introduce the tube and not to have the tube clogged up by chyme. If the tube is clogged up, we will notice that the aspirating bulb fails to distend; no contents can then be removed from the stomach. The aspirator is then removed from the tube and the fully distended aspirator is connected again with the tube. The aspirator is now compressed, which blows out the obstruction in the tube. After the tube has thus been cleared the aspirator is used as at the beginning. Having succeeded in aspirating some contents, we note the quantity, the physical appearance, and the quality. Normally about forty c. c. are aspirated. Of very great importance is to note the state of subdivision of the roll; is it coarse or is it very thinly ground up? The relative state of the subdivision of the roll indicates the relative state of the muscular activity of the stomach. The

greater and finer the subdivision of the bread, the greater was the activity of the muscularis of the stomach, and vice versa. The coarser the chyme, the less active was the muscularis of the stomach. We at once see the great distinction in this teaching, which I have advocated since 1902, from the teaching generally approved. The general but fatal view is, that the activity of the muscular coat of the stomach is to be deduced from the quantity of chyme which is aspirated; that is, where a large quantity of chyme is aspirated we are very falsely taught that we are to deduce that the stomach was lazy. Our books, for centuries past, the one thoughtlessly copying from the other, have been telling us that where a large quantity of chyme is found we are dealing with a case of atony of the stomach. Far from it; it is just the exact contrary. In the chapter on the physiology I attempted to prove the intimate relation between the gastric peristalsis and the closure of the pylorus. I there expressed my conviction, that the greater the peristalsis, the more prolonged is the pyloric contraction; that therefore the chyme, the chyme inclosed within the gastric cavity, will be subjected to more forceful grinding for the reason that it cannot leave the stomach so long as the door, the pylorus, remains closed. A protracted closure of the pylorus means, that within a given time less chyme will leave the stomach, therefore more chyme will be aspirated, and such chyme will be finely macerated. On the other hand, where the pylorus is relaxed, for reasons which we shall find in a subsequent chapter, there the pieces of the bread which have been swallowed cannot be subjected to a thorough maceration, or perhaps to any maceration at all, and therefore whatever little is aspirated is very coarse. In many of my previous publications I have drawn attention to experiments which proved that the maceration of the roll into, what appears as a layer of flour, which I also termed the "floury layer" is a purely mechanical, dynamical act and has nothing to do with the chemical capability of the gastric mucosa.

Thus I have proved to my entire satisfaction, that in the artificial digestion tests, I obtained all the chemical results of digestion, yet the bread remained just as coarse as when I put it into the beaker before beginning the experiment. Only after moving around a glass rod, more or less vigorously, did the artificial chyme resolve into the "floury layer," thus proving the mechanical element, which is necessary to produce the "floury layer." I have also repeatedly aspirated a chyme which gave the floury layer, yet was devoid of any evidence of chemical activity, again proving that the maceration of the roll into the very fine state is purely a dynamical, a mechanical, and not a chemical act. Thus the state of the maceration of the chyme indicates the muscular activity of the chyme and, coincident with this, the relative state of the closure of the pylorus. In the state of normal digestion the aspirated chyme settles on the bottom of the beaker as a layer of flour. As the pylorus weakens, the ingested bread becomes coarser. The state of the fineness of the chyme denotes the respective state of contractility of the pylorus, and therefore the state of the gastric peristalsis. Between the very finely macerated chyme and the very coarse

one there are to be noted many gradations. When we observe the aspirated chyme in the beaker we may find that there is comparatively little solids on the bottom, with a comparatively large quantity of supernatant fluid, the solids being of the floury variety. In another case we find the floury solids intimately mixed with the fluid, seeming to be of "creamy" consistence. Here the fluids are diminished. Again the solid in the chyme appears suspended in a semifine condition; the whole appearing as "spongy." Here we find evidence of the beginning weakening of the pylorus, and the total quantity which is aspirated is usually small. Mucus may be present in varying quantities.

The color of the chyme has its own signification. The fluid part of the chyme may have a somewhat bluish green, or a yellowish brown tinge. The former is characteristic of a good diastatic digestion, that is, there is indication of good saccharification; the latter shows good peptic digestion. The aspirated chyme may be of a decided green, or of a red color. A grass green color shows the presence of mould; a dark olive green is suggestive of bile. The red color may be due either to blood or to the dark red mould. Blood tinges the entire chyme red; mould does not. A black, coffee ground appearance shows blood which has undergone changes in the stomach. Very often the aspirator brings forth a chyme which is of a decided yellow color, the solids being more or less well macerated. Such chyme is not aspirated from the stomach, but from the duodenum, and the pathological condition with which we are dealing here is a relaxed pylorus associated with an obstruction somewhere of the duodenum, the obstruction not necessarily being of an organic nature, but possibly due to a spasm or adhesion.

The normal odor of the aspirated test meal is rather pleasant; it is a sweetish sour. The pathological odor varies with the character of the contents. Thus the contents may have a decided sour or acrid or pungent odor; it may have a rancid odor, due to butyric acid; the odor may be foul, musty, or even fetid. On standing, the chyme may also show fermentation, which is recognized not only by the peculiar odor, but also by the rising air bubbles.

Occasionally it becomes important to ascertain the exact quantity of chyme which was present in the stomach. To determine the absolute quantity of chyme, I use the very simple method of Mathieu and Remond. According to this method there are to be determined: v , the quantity actually aspirated; A , the general acidity of the chyme; W , the quantity of water which is to be introduced into the stomach after the stomach contents have been aspirated and, a , the acidity of the wash water. If V represents the absolute quantity to be determined, the formula for carrying out the problem is:

$$V = v + \frac{W \cdot a}{A - a}$$

To determine the absolute quantity of the gastric contents after this method, we first aspirate the stomach, note the exact quantity of aspirated chyme, and determine its general acidity. Then a given quantity of water is introduced into the stomach, which is siphoned out and reintroduced into the

stomach a few times so as to have this water well saturated with the acid elements of the retained chyme, after which the water is siphoned out altogether, and its acidity is ascertained. There is no absolute necessity to siphon out all this wash water, as the only purpose it serves is to enable us to determine its acidity. According to the foregoing formula, the exact quantity of the stomach contents equals the sum of the aspirated chyme, plus the quotient obtained by dividing the product of the quantity of the wash water introduced, after the aspiration, multiplied by the acidity of this wash water; by the difference between the general acidity of the chyme and the acidity of the wash water.

After all the chyme is aspirated, about 500 c. c. of warm water is introduced into the stomach through a stomach tube to which a large glass funnel of 500 c. c. capacity is attached. The water so introduced is siphoned back into the funnel a few times in order to allow the water thoroughly to mix with any contents which may have remained in the stomach. Then the acidity of this wash water is ascertained with phenolphthalein as an indicator.

VII.

THE STOMACH SECRETIONS.

The treatise which now follows deals with the chemical examination of the test meal, that is, with the determination of the presence and relative quantities of the secretions, which are essential and necessary for gastric digestion. First of all, we will speak of the acids. According to the textbooks, we are to find acid phosphates, hydrochloric acid, and, at the beginning of digestion, also lactic acid. My numerous experiments have taught me that the normal chyme does have hydrochloric acid, both free and in combination, but that it does not have any acid phosphates, nor lactic acid at any period of the normal digestion. I fear that the finding of the latter acid is due to a faulty interpretation of the indicator then used. It is held that the acid, which enters into the formation of the gastric juice, is the hydrochloric acid; but, it is to be remembered that proteolysis does not depend upon hydrochloric acid alone. All free acids, mineral and organic, digest albumen when combined with pepsin.

Quite early in my career of the special practice of gastrology, in fact in the very first year, doubts had arisen in my mind as to the identity of the free acid, which I had been taught was all free hydrochloric acid. Somehow or other I often perceived an odor, pungent, acrid, which, I was sure, was not due to hydrochloric acid. What was it? According to the indicators which I was taught to use, namely, Congo red and dimethylamidoazobenzol, I had to call the acid, proved to exist with such reagents, hydrochloric acid. With increasing restlessness concerning this matter, I resolved to go to the bottom of this question and, for that purpose, I purchased all acids that were ever found in the stomach, and also the several indicators which have been recommended for the chyme analysis. I made solutions of the acids of a strength to correspond with the acidities usually found in the stomach, that is, acidities varying from twenty to eighty. Each indicator was tested with all the acids. The follow-

ing acids were employed: Hydrochloric, sulphuric, nitric, and phosphoric, these representing the mineral acids. Of the organic acids were employed: Acetic, butyric, citric, formic, lactic, malic, oxalic, propionic, succinic, and tartaric; of the acid salts were tested, the acid phosphates of calcium, magnesium, potassium, and sodium. As indicators I used: Benzopurpurin, methyl violet, congo red, dimethylamidoazobenzol, tropeolin oo, and the Guinzburg's and Boas's reagents. The assertions concerning these indicators are, that the free mineral acids turn the dark red solution of the benzopurpurin into violet; that methyl violet and Congo red turn blue with the free inorganic acids; that the indicator dimethyl turns a solution of free mineral acids into a carmine red and, that the tropeolin gives a dark cherry red color to such free mineral acids; while the Guinzburg and the Boas reagents give a pink peripheral ring when a solution which contains a free mineral acid is heated over a flame in a white porcelain receptacle. These statements are all true. But, what is not true is that these reactions take place with the free mineral acids only. My repeated experiments have proved that the first four indicators, the benzopurpurin, the methyl violet, the Congo, and the dimethyl react as well on the free organic acids, in acidities which do not exceed the normal, and not, as is wrongly thought, in only high acidities. The Guinzburg and the Boas reagents deserve the highest confidence for their accuracy as indicators for free mineral acids, and next comes the tropeolin oo.

It was this chapter, the question of the proper determination of the quality and quantity of the acids which finally gave birth to my newer teachings, the old teachings, in very many instances proving fatally defective and misleading. In the old teachings the vivid imaginations of the investigator were permitted full sway, and conditions were assumed to exist which had their being only in the hallucinations and illusions of an overzealous experimenter. Therefore, the first question to hold our attention is the matter of a proper reagent which is to be used as an indicator, as upon it depends our diagnosis. Here we must be cognizant of the fact that, in answering this question, we enter the domain of chemistry, which permits of no sophistication and of no unwarranted assumptions. In a given specimen of chyme the question is first, is it acid and, if so, what acids are there present and how much of each acid does that chyme contain? We are still shackled with the baneful inheritance, seen in our textbooks, the one copying thoughtlessly from the other, that in the presence of free hydrochloric acid there can be no other acid present, or, if there be any, such other acid is present in a negligible quantity. Our textbooks do, very wrongfully, teach that the presence of free hydrochloric acid precludes the presence of organic acids. Another unfortunate and undeserved attribute is imputed to the free hydrochloric—such as we find in the stomach—that it acts as an antiseptic and that, therefore, no bacteria can be found in a stomach where there is a sufficient amount of free hydrochloric acid. This is not true. In *zymosia gastrica* and fermentations both free acid and

bacteria do exist together, side by side, in the same chyme.

The methyl violet (0.01 gramme, water 50 c. c.) did not give a blue color with acetic acid (acidity 50), butyric acid (acidity 40), citric, formic, lactic, malic, propionic, and succinic acids, but did give the reaction with oxalic and tartaric acids. However, this indicator is not readily suited for volumetric analysis. Congo paper reacted more or less on all these acids and, when a deeper colored paper was used, the reaction on all the acids became convincingly positive. Concerning the dimethylamidoazobenzol, it reacted, not only on all these organic acids, but also on the acid phosphates of magnesium (acidity 40) and of calcium (acidity 50).

Of greatest value I have found the saturated alcoholic solution of tropeolin oo, which gives a cherry red color with the mineral acids. This indicator failed to react with the following organic acids: Acetic, butyric, citric, formic, lactic, malic, propionic, succinic, and tartaric, but it did react with oxalic acid. My repeated, painstaking, and successful experiments with this tropeolin solution, and my twelve years' practice with it, justify me in recommending this indicator for the qualitative and quantitative analysis of free hydrochloric acid in chyme.

I have tested the correctness of the tropeolin as follows: First, I have taken a mixture of inorganic and organic acids, the acidities of each of which I previously ascertained thus: I mixed together five c. c. of a hydrochloric acid solution of an acidity of about twenty, with five c. c. of acetic acid solution, the acidity of which was thirty. I therefore knew that this mixture contained twenty hydrochloric acidity. Of this hydrochloric and acetic acid mixture I took five c. c., and titrated first with tropeolin as indicator. The end reaction of this titration was reached when the burette indicated an acidity of twenty, although the total acidity of the entire mixture was fifty. I now added Topfer's solution. The mixture instantly turned a carmine red owing to the presence therein of the acetic acid.

Another method: Chyme was titrated with the tropeolin as indicator and the end reaction of the tropeolin showed an acidity of fifteen. I then took another specimen of the same chyme and added decinormal sodium hydrate from the burette to correspond to an acidity of only twelve. The chyme, now tested with Guinzburg's reagent, proved the presence of free hydrochloric acid. I then added some more of the decinormal soda solution to correspond to an acidity of eighteen and again tested with Guinzburg's reagent for free hydrochloric acid. This time Guinzburg's reagent failed to prove the presence of free hydrochloric acid.

But the most positive, corroborative proof of the absolute correctness of the tropeolin oo as the indicator for free hydrochloric acid, I obtained by resorting to the determination of all the chlorides and of the free hydrochloric acid, according to the method of Martius and Lüttke, which I slightly modified. This method is the most exact for the quantitative, volumetric analysis of the chlorides; the only drawback to this method is the quantity of chyme necessary, and the time it requires. My

modification of this method consisted in not using a decinormal silver solution, but a solution which contained 29.075 grammes of silver nitrate to one litre of distilled water. One c. c. of this solution equals 0.1 gramme sodium chloride, or 0.00607 of chlorine. The titrating reagent was a solution of seven grammes of rhodan ammonium (ammonium sulphocyanide) to 975.6 c. c. distilled water. These two solutions are so proportioned that two c. c. of the rhodan solution neutralize one c. c. of the silver solution.

The exact method of the analysis is as follows: To forty-six c. c. distilled water are added four c. c. nitric acid (specific gravity 1.2), then are added ten c. c. of the filtered chyme, ten c. c. of the silver solution, five c. c. of a saturated solution of ferric sulphate—the indicator—or any other salt of iron, ferric chloride excepted, and then distilled water is added to make 100 c. c. After the precipitate has settled we filter. When this is done, fifty c. c. of the filtrate are very carefully titrated with the rhodan solution from the burette, until the filtrate just turns from white to a yellowish pink. This is the end of the first titration and the buret reading is taken. This titration determines all the chlorides present. The second determination consists in taking ten c. c. of the filtered chyme, which is evaporated in a platinum crucible over a Bunsen flame, between which and the crucible a sheet of asbestos is placed to prevent any loss of the chyme by spattering. When completely evaporated, the asbestos is removed and the platinum crucible comes in direct contact with the flame. The contents in the crucible ignite and, just so soon as no more flame issues from the crucible, it is removed. Too long glowing of the ashes will cause loss of the chlorine by volatilization. The ashes are now rubbed with a glass rod, a little warm distilled water having been added. The complete extraction of the chlorine of the ashes is done by means of about 100 c. c. of warm distilled water. This chlorine containing water is passed through a filter. To make sure that all chlorine has been extracted, the last drop from the funnel is tested, in a test tube, with silver nitrate; the absence of a white precipitate proves the absence of chlorine. The warm filtrate is cooled and, for the estimation of the chlorine which it contains, ten c. c. of the silver solution, four c. c. nitric acid, and five c. c. ferric sulphate solution are added, and the whole titrated with the rhodan solution until the white turns to a yellow pink. The burette is now read. The calculations are made as follows: Every two c. c. of the rhodan solution used corresponds to one c. c. silver nitrate solution, so that, if 5.5 c. c. of rhodan has been used for the first titration, it would mean that just so much of the ten c. c. silver nitrate solution was added in excess. Consequently, only the difference between the ten c. c. silver nitrate added and the 5.5 c. c. found as excess (4.5 silver nitrate) was required to bind all the chlorine of the chyme. (In order that these figures be not improperly interpreted, or be misread, it will be remembered that only fifty c. c. instead of 100 c. c. were used, consequently the 5.5 of the rhodan solution used in

this titration are equivalent to double the quantity, i. e., eleven c. c. for 100 c. c. Since two c. c. of the rhodan solution neutralize one c. c. of the silver solution, and since there were used 5.5 c. c. of the rhodan, which is here equivalent to eleven c. c., calculated for 100, and since two c. c. of the rhodan neutralize one c. c. of the silver, therefore the 5.5 c. c. of the rhodan used equals half that quantity of the silver solution, i. e., it equals 2.75 of silver solution in fifty c. c., or double that quantity in 100 c. c.) If now the second titration showed that 17.7 c. c. of rhodan solution were used, that would correspond to 8.85 c. c. AgNO_3 used in excess. Consequently, of the ten c. c. AgNO_3 added the second time, only the difference between ten and 8.85, that is, 1.15 c. c. of the silver nitrate were actually required to bind all the chlorine of the ashes. The difference of the 4.5 of the first titration and 1.15 of the second titration, gives the number of c. c. AgNO_3 required to bind the chlorine present in the chyme as free hydrochloric acid. In this example the difference is 3.35. As one c. c. of the AgNO_3 solution equals 0.00607 chlorine, this number is multiplied by 3.35, which gives 0.0203345 chlorine present as free hydrochloric acid in the ten c. c. of the chyme. As 36.5 c. c. hydrochloric acid equals 35.5 chlorine, the 0.0203345 will equal 0.0209073 hydrochloric acid. From this last number the acidity of the chyme can be calculated, inasmuch as 0.3 hydrochloric acid to 100 c. c. water gives an acidity of forty.

According to this method I ascertained the free hydrochloric acid in three specimens of chyme. In the first specimen the tropeolin gave free hydrochloric acid twenty-two and 26.6, according to Mathieu and Remond. The second specimen gave with tropeolin free hydrochloric acid thirty and 30.26, according to Mathieu and Remond. And the third experiment yielded free hydrochloric acid thirty-four, with tropeolin and thirty-seven, according to Mathieu and Remond. The slight differences are negligible. These experiments certainly qualify the saturated alcoholic solution of tropeolin oo as the most excellent indicator for the determination of the free hydrochloric acid, standing in no way behind the Guinzburg reagent, which latter is more expensive and has no superior qualities over the tropeolin. On the other hand, the tropeolin is superior to both Boas's and Guinzburg's reagents, in so far as these cannot be used for the quantitative analysis, while the tropeolin can.

The tropeolin oo solution is prepared by putting an excess of the tropeolin oo into absolute alcohol. The bottle is shaken up a few times for the next two or three days, and a small additional quantity of tropeolin is added. Again the bottle is left for two or three days and shaken up a few times. This adding of tropeolin is repeated a few times, until the solution is of the color of the tincture of iodine. In order fully to familiarize oneself with the proper color reaction of the tropeolin, a drop or two are added, in a beaker, to a small quantity of a hydrochloric acid solution and the resulting color is well noted. Again, one or two drops of the tropeolin are added, in a beaker, to plain water and the resulting color here is also noted. With the

mineral acids tropeolin gives a somewhat cherry red color, and with plain water an amber color. In the chyme analysis the titration is continued until the end reaction of the tropeolin, i. e., the amber color is reached.

The Guinzburg reagent consists of:

Phloroglucin, ...2 grammes;
Vanillin, ...1 gramme;
Absolute alcohol, ...30 grammes.

The solution is to be kept in a dark bottle and must be freshly made.

A few drops of the chyme are put into a white porcelain spoon or dish, a drop of the Guinzburg reagent is added and heated over a Bunsen burner. At the periphery of the heated liquid appears a beautiful pink ring. This ring is occasionally better noticed when the dish or spoon is removed from the flame and blown upon. In observing the color, we must be sure that the color is a decided pink and not something which looks like pink. The drawback to this solution is that it is comparatively dear and cannot keep very long. Boas's reagent consists of:

Resorcin, ...5 grammes;
Sugar, ...3 grammes;
Dilute alcohol, ...100 grammes.

Also this solution must be kept in a dark bottle; but it can keep for years and is cheaper than the Guinzburg solution. This reagent is used in the same way as the Guinzburg reagent and also gives a pink ring on heating. There is no criticism as to the reliability of these two reagents; they are both perfect.

The dimethylamidoazobenzol solution, better known as Töpfer's solution, is used in a half per cent. alcoholic solution. It gives a carmine red color with free acids, mineral and organic, and its end reaction is recognized by the solution turning a lemon yellow color. The fact that this solution also reacts with the free organic acids, caused me to employ this reagent just for the determination of the free organic acids, while I use the tropeolin for the determination of the free hydrochloric acid.

The phenolphthalein is used in a one per cent. alcoholic solution and has the property of turning an alkaline solution to deep carmine red. In the chyme analysis it is used to indicate when the chyme ceases to be acid and turns alkaline, which is recognized by the chyme taking on a carmine red color. Occasionally a bare trace of chyme is aspirated, or only a small quantity over which a dense layer of mucus lies. My practice under such conditions is, in order to ascertain, qualitatively, the presence of free hydrochloric acid and free organic acids, to wet a small strip of filter paper with the chyme and then drop a drop of tropeolin or Töpfer's solution on the wet filter paper. In the presence of the free acids, the characteristic reaction takes place on the filter paper. Where there is a good deal of mucus I always wait a little while and then pour out the chyme from the first beaker into another; there is always a drop or two left in the first beaker which is free from mucus, and I dip the strip of filter paper in this drop of chyme and then test with the indicators.

616 MADISON AVENUE.

FAMILY INCIDENCE OF MALIGNANT TUMORS.

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Until such time as the etiological agent of malignant tumors shall be definitely established, the collection of data on various phases of the problem is of value. It is not our intention to discuss or to attempt to explain the occurrence of several cases of malignant tumors in the one family, but simply to place on record additional cases.

The first of the series of families observed was family A. Mrs. A., aged fifty years, lived in New York in the winter, and at a little town of 500 inhabitants in the southern portion of the State, in the summer. Five years before her present trouble her husband had purchased their country home from an estate. The previous owner of the property had died of a carcinoma of the stomach, six months after the death of his wife; and she had died of a cancer of the uterus. The clinical history of these two cases is not obtainable, the family physician having died shortly before Mr. A. bought the property. Five years after Mr. A. had purchased this house as his summer home, his wife, while in a runaway accident, was struck on the left breast. Four months after this accident a carcinoma developed at the site of this bruise. This was followed in three months by another carcinoma of the same type in the opposite breast. Both breasts were amputated. The patient died of a general carcinomatosis three years after the accident.

During the last six months of Mrs. A.'s illness, an epithelioma of the cervix uteri developed in her mother, Mrs. Z., aged eighty years. From this she died in six months, the immediate cause of death being a profuse hemorrhage. Mrs. Z. had had a severe bilateral laceration of the cervix for over forty years.

Shortly after Mrs. A. was operated upon for carcinoma of the breast, two of her sons married two sisters of the family H. The H.'s lived seven miles from the A.'s. Four months after the death of Mrs. A., in the father of the H. sisters, developed a sarcoma of the large intestine, in the region of the splenic flexure. Mr. H. had suffered for over fifteen years with obstinate constipation, due in all probability to adhesions following general peritonitis, the peritonitis, in turn, being caused by a perforated appendix.

Mrs. Z. lived with Mrs. A., and Mr. H. had frequently been to see both while Mrs. A. was sick. All the patients were at the onset of the illness exceptionally well nourished.

The family W. furnishes the second series of cases. In Mr. W., aged fifty-two years, developed a carcinoma of the large intestine. Previous to this time he had suffered for years from what was termed a "nervous diarrhea." He died one year after a palliative operation. Four months after his death, Mrs. W. had an epithelioma of the breast. For fifteen years she had at the site of the malignant tumor formation a small wart. As soon as she heard the diagnosis in the case of her husband, on the advice of a nurse, she applied sodium ethylate

to the wart. Instead of disappearing the wart commenced to grow, at first slowly, and then more rapidly. The affected area was excised and the diagnosis confirmed microscopically.

The third series of cases occurred in family P. Mr. P., aged forty-five years, furnished the following history: He married at the age of twenty years. Two years after marriage his wife showed cancer of the breast, from which she subsequently died. He then married his wife's sister, and she, five years after her marriage, also had a cancer of the breast. After the death of his second wife he remained single for seven years and two years ago married for the third time a widow, aged forty-two years. The present Mrs. P. presented what was clinically a carcinoma of the breast. This diagnosis was latter confirmed by operation and microscopical examination. On very close questioning Mr. P. admitted sexual abnormalities. He stated that he could obtain sexual gratification only by biting his partner and that the site of election was the breast. He seldom bit so as to draw blood, but often caused subcutaneous hemorrhages, slight in amount. In brief he repeatedly contused the breast tissues.

In this series of cases we have typical examples of the types described by Behla and others. *Cancer à deux*, so called house infections, and family transmission are all represented. It is singular that in these cases where the clinical history as to previous sources of irritation has been carefully inquired for, it has been found. It is known that irritation of various types has a powerful influence on malignant tumor incidence. These three families have been observed during the last six years. It is probable that every physician can recall similar instances. Viewed casually the cases apparently furnish evidence supporting the viewpoint of a parasitic etiology. Closer examination shows that irritation is the predominant element, and that combination in family groups and houses is incidental.

222 WEST 136TH STREET.

OTOLOGY FROM A MEDICAL POINT OF VIEW.

BY H. N. SPENCER, M. D., LL. D.,
St. Louis.

Such an advance has been made in the surgery of otology during the more recent decades that it places this department in the very forefront of modern surgery. In no department has there been progress more beneficial to humanity. The progress made bespeaks the character of the workers in the field. Without suggesting that the present system is in any measure imperfect or that any other methods might be pursued which would further serve to establish in the sphere of medical thought and science the present advantageous position of the otologist, I would, however, present a phase of the subject which may serve to increase our interest and quicken our energy.

Aural and nasal practice is to be considered from two points of view—the surgical and the medical. Enthusiasm for the one should not cause us to lose sight of the other; neither should the brilliant re-

sults which frequently follow in the practice of the one occasion disparagement of the more tardy results in the other. Often the conscientious therapist is rewarded by recoveries as real and as permanent as those which are secured by the surgeon.

How are the best results obtained in medical practice? What affections of the ear and of the nose are amenable to medical treatment? What are the remedies? These and similar questions naturally arise in view of the foregoing statement.

The ideal specialist in this department, as in other departments of scientific medicine, is the man who establishes a close connection between his routine work and his laboratory. He divorces, so far as possible, practice from empiricism, and in doing so endeavors to establish the rationale of the pathological finding and of the treatment instituted. I am of the opinion that, in this country at least, conditions of practice support these observations. Possibly the consciousness of limitations may unduly emphasize in my own mind this opinion; but that this opinion is based on existing conditions, all too general, cannot be questioned.

Here the question naturally arises: How are we to adjust the requirements of investigation with the duties of active practice? One method of procedure would be to weigh connectedly conditions with which we are familiar with the remedies which our clinical experience has, in such cases, taught us to employ, and thus discover, if possible, the reason for the treatment which we have set up. For example: We know that alcohol is a specific remedy for aspergillus; we know the effect of silver nitrate in certain diseases of the ear and of the nose, and we know the value of ethyl morphine hydrochloride in atrophic rhinitis, but we do not always stop to consider the rationale of such remedies. I am persuaded that if we should acquire this habit it would be most natural for us to proceed a step further than we are accustomed, and show the relation which evidently exists between many diseases of the ear and nose and processes of disease elsewhere. To me it is most apparent that wholly inadequate consideration is given to the efficiency of internal medicine in the treatment of diseases of the ear and of the nose. We are too apt to see merely the local manifestation of disease and in dealing with it to rely entirely on our acquired technical skill, shutting our eyes to the existence of the remote cause. It matters not how skillful we may be in surgical procedure or topical treatment, I am convinced that the most favorable results are frequently delayed, sometimes permanently, by failure to resort to internal treatment.

I know that I address men of liberal education and I am sure that dereliction on the part of these is not due to lack of knowledge of general disease or of general practice. It may be that the specialist is deterred from taking this wider view in deference to the internist, who may contend that such care of his patient should be referred to him, nor would I undervalue the importance of such cooperation. Nevertheless, I would emphasize the fact that the aurist and rhinologist must recognize the necessity for such treatment and that the responsibility is his. Neither the imperative necessity for

local treatment, nor the interest which centres in the local lesion, nor yet the confidence which we may feel in our ability to deal with it should cause us to limit, or permit to be obscured this wider view. If we made more frequent examination of the urine; took cognizance of the blood pressure; understood the heart conditions; examined abnormalities of digestion, I am satisfied that we should be in position to deal with many perplexing symptoms and persistences of disease.

Many cases of distressing tinnitus aurium might be relieved or cured by constitutional treatment—cases in which local treatment, however persistent, would not have the slightest effect. Frequently, cases of persistent otorrhea are materially helped and resolution is hastened by means of remedies directed to the general condition of the patient. The same may be said of chronic nonsuppurative inflammation of the middle ear. Attention to the patient's general condition; correct manner of living; proper sanitation; and the correction by internal treatment of systemic disorders will often accomplish more than local applications or operative procedures.

The point which I make might be illustrated by a narration of cases, but I am confident that illustration is unnecessary to establish the statement submitted—a statement which may well be deemed selfevident.

I am aware that this matter of careful laboratory investigation is quite uniformly practised prior to surgical measures and that the surgical procedure is determined by the result of such examination. When the same painstaking work is done prior to undertaking the nonsurgical case; when the local and constitutional treatment is formulated to accord with conditions disclosed in the laboratory work, as well as by the objective examination, otology will have made a material advance.

Of course it is understood that the foregoing measures are not offered as a substitute for local treatment or operative procedure, but for use concurrently therewith.

2725 WASHINGTON AVENUE.

INTRAMURAL ABSCESS OF THE PUERPERAL UTERUS.

BY ANTHONY H. HARRIGAN, M. D.,
New York,

Assistant Visiting Surgeon, Fordham Hospital; Chief of Gynecological
Clinic, St. Vincent's Hospital.

The subject of intramural abscess of the puerperal uterus has hitherto obtained but meagre consideration. Even as late as 1906, so distinguished a gynecologist as Pozzi denied its existence, and at the present time many authoritative textbooks fail either to mention its occurrence or to emphasize its clinical import and significance. The recognition and acceptance of this condition as a distinct type of pelvic infection doubtless has been hindered by the difficulties in diagnosis and hampered by the obscurity and complexity of its complications.

The following case is reported to direct attention to this lesion. The patient was admitted to the sec-

ond surgical division of Fordham Hospital in the service of Dr. Alfred S. Taylor, to whom the writer is indebted for the privilege of operating on and reporting the case.

CASE. F. J., aged thirty-six years, admitted January 15, 1912, IV para. Family and personal history negative.

Present illness: Four days before admission gave birth to a male child. She was attended by a midwife and the delivery was noninstrumental. At the time of admission, she complained of abdominal pains. There was a foul lochial discharge. Temperature 104° F., pulse 114, respiration 32. Leucocytosis 9,200. Polymorphonuclears 76 per cent. The following day, the uterus was curetted by the house physician. A fair amount of necrotic placental tissue was removed. The next day the temperature was 98° F., but soon reached 103.4° F. Whiskey, strychnine, and saline douches were ordered.

January 17th. Complained of abdominal pain. Vomited. Temperature 104° F., pulse 108, respiration 32. January 20th: Profuse yellowish vaginal discharge. Temperature 102° F., pulse 96, respiration 26. January 21st: Blood culture showed no growth. Temperature 99° to 101.2° F., pulse 108, respiration 24. January 22d: Complained of headache and nausea. Temperature 100.4° to 102.6° F., pulse 120, respiration 36. Condition was somewhat improved; vaginal discharge still profuse.

February 4th: Leucocytosis 9,200. Polymorphonuclears 76 per cent. February 6th: Leucocytosis 6,500. Polymorphonuclears 78 per cent. February 8th: Slight abdominal pain and bloody vaginal discharge. Temperature 102° F., pulse 100. February 16th: Widal negative. Temperature 103.4° F., pulse 108 to 112.

February 24th, forty days after admission, patient was transferred to the second surgical division. During her stay in the medical ward, the temperature had ranged from 99° to 103.4° F., with a corresponding change in the pulse rate. A Widal test was negative and a blood culture failed to show any growth. February 25th: Abdominal pain. Temperature 100.4° F., pulse 110. February 26th: Irrational at times. Abdominal pain continued. Vaginal examination by Doctor Taylor showed uterus to be enlarged. The cervix was patulous and to the left of the uterus was a mass. Doctor Taylor believed the condition to be one of septic salpingitis associated with a certain amount of pelvic cellulitis. February 27th: Very restless. Abdominal pain. Temperature 100.4° to 103° F., pulse 114 to 120.

March 4th: At 11 a. m. the patient complained of abdominal pain, had a severe chill, and vomited. General abdominal rigidity. Leucocytosis 29,000. Polymorphonuclears 88 per cent. Temperature 105° F., pulse 112, respiration 34. Vaginal examination revealed a sensitive mass in the left side of the pelvis. As the symptoms pointed toward an acute intraperitoneal complication, operation was decided upon.

OPERATION.

Ether narcosis was induced and a median hypogastric incision was made. A mass consisting of uterus, sigmoid flexure, and omentum presented in the pelvis. The omentum was adherent to the parietal peritoneum in front of the right broad ligament. When this adhesion was separated, a pocket of pus was found in front of the right broad ligament. The sigmoid flexure was adherent to the fundus of the uterus and to the parietal peritoneum in front of the left broad ligament. After the adhesion of the sigmoid to the parietal peritoneum was freed, a second pocket of pus was discovered anterior to the left broad ligament. The union of the sigmoid flexure to the uterus was very firm; an attempt to free the sigmoid was soon given up owing to fear of injury to the vessels of the mesosigmoid. The separation was finally effected by incising the uterine peritoneum in front of the line of adherence and by stripping back the uterine peritoneal covering with the attached sigmoid. When the intestine was

lifted up, a perforation was seen on the anterior surface of the left cornu. It was about three quarters of an inch in diameter. Creamy, yellow pus exuded through the opening. The adjacent portion of the uterus was necrotic. It was apparent that a hysterectomy was indicated. This was done in the usual manner, leaving a small segment of the cervix. The pedicles were transfixed and ligated with chromic catgut and the stumps covered with a peritoneal flap separated from the anterior surface of the uterus. The pelvis was wiped dry and the abdominal wall sutured in layers. No drainage.

During the course of the operation, the patient went into collapse. After vigorous hypodermic stimulation and an intravenous infusion of saline, the pulse became barely perceptible at the conclusion of the operation.

During the first four days following operation the patient's condition was extremely critical. On the fifth day the wound was inspected. There was profuse suppuration, superficial to the fascial sutures. A staphylococcus was isolated from the discharge. A bronchopneumonia of the right lung was detected on the seventh day.

The patient was put in the open air. On April 20th, forty-seven days after operation, the temperature reached normal. The patient was discharged from the hospital, April 26th, with the wound closed save for a granulating area flush with the skin in the lower one quarter of the incision.

PATHOLOGICAL REPORT.

(Dr. J. E. Welch and Dr. M. Grossman.)

Macroscopical: Uterus 6x8x13 cm. Weight 250 grammes. Walls thickened. On anterior surface, entire left side replaced by a large necrotic mass. Left ovary and tube adherent to mass posteriorly. Mass does not show any connection with endometrium.

Microscopical: Section shows a large area of complete necrosis. Muscle cells show extensive round cell infiltration and well marked cloudy swelling. Two small areas of focal necrosis between muscle fibres. Blood-vessels are markedly congested. Moderate amount of new formed fibrous tissue throughout section.

Diagnosis: Abscess of uterus.

A comprehensive description of abscess of the uterus is provided in a monograph written by O. von Franqué, and which appeared in 1901 in the *Sammlung klinischer Vorträge*. Von Franqué was aided in researches by the concerted and helpful endeavors of various colleagues in several countries. Hence the bibliography is extensive. He includes within the scope of his study all classes of uterine abscesses regardless of their source. His personal case is detailed under the name *metritis dissecans*. He employs this term to signify the extrusion per vaginam of a fragment of uterine parenchyma separated and detached by necrosis. As this expression implies only a pathological process and does not indicate its causation, it is not explicit. Von Franqué collected fifty authentic cases, of which seven were puerperal in origin, and the remainder gonorrheal, traumatic, or tuberculous. A number of cases were classified as unauthentic, because they were secondary to primary tubal or parametric suppurations or owing to their development in the necrotic and degenerative residual products of benign and malignant tumors.

Another critical contribution to the topic is contained in a Paris thesis, written by Mercade and

Name.		Bibliography.		Location.		Appendages.		Period of infection.		Operation.		Remarks.	
				Fundus						Found half teacup of pus			
1	Van Courtland.....	<i>Canada Medical Journal</i> , 1832-53		Posterior wall of cervix		.....		.....		.....		Symptoms of pneumonia.	
2	Storer	<i>Boston Medical and Surgical Journal</i> , 1864		Posterior wall of fundus		Normal		.....		.....		Specimen presented.	
3	Saxinger	Abstracted by von Franque				.....		3 months		.....		Perforation of abscess; peritonitis.	
4	Lucas Championniere	<i>Bulletin de la Société d'anatomie de Paris</i> , 1869		Posterior wall of fundus		Normal		.....		.....		Peritonitis	
5	Lucas Championniere	<i>Thèse de Paris</i> , 1870		Fundus		.....		.....		.....		Peritonitis; abscess of broad ligament.	
6	Finnell	<i>Medical Record</i> , 1871-72		Anterior wall of fundus		.....		.....		.....			
7	Boldt	<i>Proceedings of the New York Pathological Society</i> , 1888		Anterior wall of fundus		Right pyosalpinx		4 weeks		Abdominal section			
8	Augustyn	Inaugural Dissertation, Leiden, 1893		Right cornu		.....		4 weeks		Abdominal section		Abscess incised and drained.	
9	Jonas	<i>American Journal of Obstetrics</i> , 1895		Fundus		.....		.....		Extraperitoneal drainage			
10	Davis	<i>Ibidem</i> , 1895		Right and left cornua		Subacute salpingitis		8 weeks		Supravaginal hysterectomy		Abscess in left horn communicated with one in left broad ligament.	
11	Penrose	<i>American Journal of Obstetrics</i> , 1895		Right and left cornua		Subacute salpingitis		8 weeks		Supravaginal hysterectomy		Abscess in left horn communicated with one in left broad ligament.	
12	Noble	<i>Transactions of the Southern Surgical and Gynecological Association</i> , 1895		Fundus		.....		2 weeks		Drainage			
13	Noble	<i>Ibidem</i>		Fundus		Normal		2 weeks		Drainage			
14	Noble	<i>Ibidem</i>		Fundus		Left salpingitis		18 days		Drainage			
15	Noble	<i>Ibidem</i>		Fundus		Normal		.....		Drainage			
16	Noble	Grady Hospital		Fundus		Normal		.....		Drainage			
17	Noble	<i>Ibidem</i>		Fundus		Normal		.....		Drainage			
18	Noble	Private Infirmary		Fundus		Normal		.....		Vaginal hysterectomy		Small abscess in broad ligament.	
19	Turcotte	<i>Gynecologie</i> , 1898		Fundus		.....		.....		.....		Abscess drained.	
20	Ricketts	<i>Lancet-Clinic</i> , 1898		Cornu		.....		8 days		Abdominal section		Intraperitoneal rupture.	
21	Brindeau	<i>Bulletin de la Société d'obstétrique de Paris</i> , 1901		Fundus		.....		.....		.....			
22	Von Franqué.....	<i>Sammlung klinischer Vorträge</i> , 1901		Right cornu		.....		.....		Abdominal section, abscess drained		Diffuse peritonitis; appendicitis was suspected.	
23	Lepage	<i>Comptes rendus de la Société d'obstétrique de Gynecologie, et de pédiatrie</i> , 1903		Fundus		.....		8 days		.....		Intraperitoneal rupture.	
24	Champetier de Ribes	<i>Ibidem</i>		Left cornu		.....		19 days		Supravaginal hysterectomy			
25	Cerne	<i>Normandie médicale</i> , Rouen, 1908		Left cornu		Normal		6 weeks		Drainage		Instrumental delivery; streptococcus injection.	
26	Sampson	<i>American Journal of Obstetrics</i> , 1910		Right cornu		Normal		4 weeks		Drainage		Subsequent pregnancy normal.	
27	Sampson	<i>Ibidem</i>		Right cornu		Normal		4½ weeks		Hysterectomy		A hemolytic streptococcus was isolated from peritoneal cavity.	
28	Beyer	<i>Monatsschrift für Geburtshilfe und Gynäkologie</i> , 1910		.....		.....		.....		.....		Streptococcus injection.	
29	Barrows	<i>American Journal of Obstetrics</i> , 1911		Right cornu		Right salpingitis		3 months		Transperitoneal suprapubic drainage		Normal delivery; streptococcus injection.	
30	Barrows	<i>Ibidem</i>		Right cornu		.....		6 weeks		Transperitoneal suprapubic drainage		Instrumental delivery; streptococcus injection.	
31	Barrows	<i>Ibidem</i>		Left cornu		.....		6 weeks		Transperitoneal suprapubic drainage		Prolonged labor; streptococcus injection.	
32	Barrows	<i>Ibidem</i>		Anterior wall		.....		4 weeks		Anterior colpotomy		Delivered by midwife; streptococcus injection.	
33	Barrows	<i>Ibidem</i>		Body		Left salpingitis		2 weeks		Transperitoneal suprapubic drainage		Streptococcus injection.	
34	Barrows	<i>Ibidem</i>		Anterior wall		.....		2 months		Transperitoneal suprapubic drainage			

published in 1906. Mercade supplements the bibliography and repeats the plan of including all varieties of abscesses and of recording the unauthentic cases. The papers of Sampson and Barrows are recent, and treat of abscess of the uterus solely as it occurs during the puerperium.

It seems essential, in order to form a correct conception of intramural abscess of the uterus and to retain its clinical entity, that a rigid distinction be maintained between it and the uterine lesions occasionally seen during the progress of a pelvic thrombophlebitis. In the latter instance, the abscesses are small, multiple, and result from the disintegration of venous clots, while in the condition under consideration the abscesses are usually single in number, lymphatic in origin, and mostly situated in one of the uterine cornua. Two explanations are offered for this predilection. According to Championnière, the intrauterine lymphatics converge toward the cornua. Also, as pointed out by Mercade, the embryonal prototypes of the uterus, the Müllerian ducts, occasionally persist in the cornual regions as vestigial structures. Possibly these two factors, the richness of the lymphatic vessels plus the presence of fetal structures of diminished resistance, conduce to make this region additionally susceptible.

It is conceivable that the barrier of leucocytic infiltration which surrounds the abscess cavity might become so rigid and organized as to lead to encapsulation of the abscess, with subsequent latency and possibly ultimate innocuousness. Such a result, however, is extremely unlikely. The usual sequence is extension of the inflammatory process to the endometrium or to the peritoneal surface with subsequent perforation. Another possible termination is suppurative metritis, with necrosis and gangrene succeeding, and it is here that the term *metritis dissecans*, employed by von Franqué, is particularly applicable. In the case of intraperitoneal perforation the rapid escape and diffusion of pus cause a peritonitis, general or local, depending on the degree and extent of the limiting adhesions. Secondary rupture into the bladder and rectum are possible sequelæ.

The symptomatology is in no way special or peculiar. The indefiniteness and vagueness make the diagnosis difficult if not impossible. The general symptoms of pelvic infection, fever, chill, abdominal pain, prostration, and leucocytosis, are present. The local signs elicited by bimanual examination are not specific or significant. Careful examination under narcosis may be unavailing, as is illustrated in the cases of Augustyn, Ricketts, and the author.

Generally, palpation discloses a mass, found laterally to the uterus. This mass, which is the enlarged and swollen cornu, simulates consummately a pyosalpinx or a parametric abscess. Theoretically, this mass should possess lateral mobility and recession in conjunction with the uterus, in contradistinction to the immobility and fixity of tubal and circumuterine swellings of inflammatory origin. However, owing to the formation of adhesion, the displacement of the uterus may be restricted or even restrained. Moreover, a parametric abscess may occasionally be displaced.

If the condition is suspected, the abdomen should

be opened immediately. The vaginal route should not be chosen. When the abdomen is opened and the lesion located, the procedure to be employed varies according to the size and extent of the abscess and variety of complication. If the abscess is small and intact, the uterus may be brought forward toward the abdominal incision, surrounded with gauze packing, and the abscess incised, cauterized, and drained. Bovee objects to this procedure, on the ground of possible rupture of the uterus in a subsequent pregnancy from yielding of the cicatrix. When the abscess is large, perforated, and gangrene of the uterus is imminent, as in the author's case, supravaginal hysterectomy is indicated.

The writer has collected the cases shown in the table from the literature. The paradigm used is a slight modification of that employed by Noble.

Of the thirty-four cases in the paradigm, all were puerperal, and all save Cases III, IV, VI, VII, XXI, XXII, and XXVIII were at term. There was only one abscess in each case, except in Cases X, XI, XIII, XIV, and XXI, in which there were two, and in Cases XIX, XXVIII, and XXXIII, where the abscesses were multiple. An autopsy took place in Cases III, IV, V, VI, XXI, and XXIV. Recovery took place in all except in Cases II, III, IV, V, VI, VII, XXI, XXIII, and XXIV.

249 WEST ONE HUNDRED AND SECOND STREET.

STRANGULATED HERNIA.*

A Clinical Case.

BY HYMAN GOLDSTEIN, M. D.,
New York.

The case in question presents a clinical picture of strangulated hernia rather atypical in aspect, that is, not as described in textbooks. There are many points of interest which make this case very instructive and justify study in detail. But before entering into the description of the case proper and its general discussion, I will make several preliminary remarks and observations that may prove of diagnostic value, upon which rational treatment is dependent.

Many students and practitioners are misled by textbook descriptions of a disease in a so called typical case, not because the author is vague in his description of the disease, but for the reason that the careless student or practitioner misinterprets that which the author intends to convey. Thus, strangulated hernia, like every other medical and surgical condition, is described in textbooks as if a typical case only was concerned. What is an author's typical case? What is its analysis, and why does it mislead us?

We should bear in mind that the author combines knowledge and experience in the description of a typical case; that each typical case has a lengthy description of its literary and clinical history made from a summary, after the author has observed perhaps a few thousand cases of its class, and beside this, has collected data from the world's medical literature. There are also some authors

*A prize essay, awarded the Dudley Memorial Medal, at the Long Island College Hospital, June, 1910.

who possess an elegant literary style and synthesize the composition of their theoretical typical cases from accumulated literature of other authors, with the assumption that the reasoning, logic, and correctness of the statements of the other authors are exact, with perhaps some cases of their own experience. In both classes of authors, we find almost the same lengthy items of causes, symptoms, diagnosis, complications, prognosis, and treatment ascribed to the typical case. For instance, should you observe ten cases of strangulated hernia or any other disease, you will note that one or more typical symptoms of one kind will manifest themselves in one patient, and symptoms of a different kind be present in the others. In still another case the constitutional symptoms may predominate out of all proportion to the physical signs and vice versa in other cases. In other words, each case presents different characteristic symptoms peculiar to the individual. The aggregate of all the prominent symptoms predominating in each of the cases collected, of which a summary is made, constitutes the description of a typical case. This is also true of the causes, diagnosis, complications, prognosis, and treatment of the typical case described in the textbook. It would therefore be impossible for an author to describe the individual characteristics of each and every case, because this would fill volumes. Hence, the author is compelled to describe typical cases, with the idea that the cautious reader will *generalize the disease and individualize the patient*. The careless practitioner, who, after finding certain symptoms and physical signs after examination of the patient, concludes that this is a disease mentioned in one of the textbooks, instead of taking it to be one of a type belonging to a general class of diseases, that is, one who individualizes the disease instead of individualizing the patient, will ultimately fail in his purpose.

Other important requisites to be kept in mind, are the fundamental principles of medicine and surgery, without which no intelligent understanding and rational treatment of a case is possible. Such principles are: The relations of the organs as they are situated in the body and their histological structure; their physiological functions; associated functions of organic systems, i. e., alimentary tract, genitourinary, circulatory, cutaneous, and nervous systems; also compensatory functions of one organ or system for another.

Deviation of any of these normal functions gives rise to characteristic symptoms. These characteristic symptoms are dependent upon a perverted physiology which may be consequent upon the following:

First: Structural changes.

Second: Functional changes dependent upon nervous irritability or depression or mental influence.

Third: Compensatory overactivity of one set of organs for other diseased organs, for example, cutaneous system for the alimentary or genitourinary tracts; the liver, heart, and lung "tripod" and vice versa; disease in one will cause inhibition in function of that organ, and overactivity in the other to relieve the burden.

With these precautions, bearing the foregoing

requisites in mind when at the bedside, it is my opinion that most symptoms can be traced back to physiological disturbance or structural changes, and with the axiom "to individualize the patient and generalize the disease," an accurate diagnosis ought to be possible, except in few complex cases where some factors of the symptom complex cannot be explained and demand x ray examination or exploratory incision. To make an accurate diagnosis means the difference between life and death in many cases, e. g., a case of uremic coma treated for opium coma by the administration of atropine with the result that the patient dies. What happened? All secretions were blocked up, which instead of improving the condition aggravated it, causing the fatal termination. Some of these cases are operated in for extradural or subdural blood clot with the same result. So I can enumerate hundreds of instances where negligence or ignorance of the fundamental principles caused the fatal outcome. In general, every disease means a disturbed equilibrium between the external and the internal relations. Man is daily subjected to harmful physical influences, such as germs, trauma, temperature variations, chemicals, and irritant vapors and particles; these irritants constitute the external relations.

Normally, our resistance is enough to withstand all these influences without any deterioration in our general system, on account of various definite processes going on in our bodies—the internal relations. The constant adjustment of these constitutes health. Upon the gravity of the predominance of either the external element, whether germ or irritant, and internal element, the resistance or soil, does the prognosis depend.

These general preliminary remarks plant their footprints of necessity and importance in this particular case, as well as any other, and for this reason I have dwelt somewhat at length on the fundamental principles. I will now proceed with the case proper.

CASE. Mr. M. K., aged thirty-eight years; married; nationality, Russian (Hebrew). Previous occupation, instructor in languages in Russia; came to United States twelve years ago. Present occupation, tailor.

Family history: Father suffered for a number of years of chronic bronchitis and asthma, and died at the age of seventy-eight years, as, the patient says, from exhaustion of the asthma. Mother died at about the age of forty years, from unknown causes. Had five brothers and four sisters, all living and well. No history of hernia, lues, or cancer. Tuberculosis, doubtful.

Personal history: During childhood the patient suffered from yearly attacks of bronchitis every winter. Had measles when five years of age and made good recovery. Typhoid at eight years of age; was ill for a period of six weeks and recovered, but since then his bronchial attacks had been aggravated, he suffered more severe coughs and also attacks of asthma. For the past twenty years he had been suffering from so called dyspeptic symptoms, feeling of epigastric heaviness and pain after meals, constipation, eructations of gas, coated tongue, dry throat, and sour taste in the mouth every morning. Had small, external hemorrhoids seven years ago which passed away spontaneously.

He stated also that about fifteen years ago, while in Russia, during an unusually severe attack of bronchitis, he coughed heavily for some time, after which he felt a dull pain in the right inguinal region, and on inspection noticed a small lump there. His description was, that while straining during the heavy cough, he felt a wavelike movement of the lump, had severe pain, and was unable to walk.

But he was able to push the lump back with ease, which he did and went to bed. This relieved him of all symptoms. Afterward he noticed relapses of the same small lump once every two or three months, reducing it to a normal state each time with subsequent relief. For the past three years he noticed its return every month, but reduced it after each recurrence and protected the tumor site by placing a bandage over it, but there was a tendency for the tumor to become larger at each recurrence. No truss was used, nor had he consulted a physician up to the time when the present trouble began.

Appetite was poor; bowels constipated, urination normal, drank stimulating fluids such as tea, coffee, and alcohol moderately; smoked cigarettes occasionally but did not chew tobacco; slept well. Venereal infection was denied.

Present complaint: He attended a ball or dance on the evening of December 25, 1909, and remained till 2 a. m. The weather was cold and stormy when he started for the elevated station on his way home. On arriving at the station he felt a slight pain in the right inguinal region, and as he sat down in the elevated train he was suddenly seized with excruciating pain over the same site, felt nauseated, retched but could not vomit. He stated that he found recurrence of the tumor and it could not be pushed back. In the meantime he was restless and kept swaying in various positions and expressed a feeling of discomfort. He finally reached the Bronx station, where he alighted, and being unable to walk, he succeeded in getting home with the assistance of two men. The time being late, he did not call a physician, but went to bed, where he felt partially relieved. The tumor was still down. He remained unattended by a physician till 7 o'clock the next morning, when he summoned the truss man who succeeded in reducing the tumor, which was as large as a moderate sized fist. A binder was placed over the tumor site to prevent its recurrence. In the meantime, proper measurements were made for a truss. The truss man returned at about 6 o'clock that evening with the truss. During all this time the patient was kept in bed. The binder was removed and the truss applied for the purpose of fitting it. All the symptoms abated when the tumor was reduced and held protected by the truss. The patient then got out of bed, went about his daily business, and felt quite relieved and comfortable. He felt well for about fourteen days when, while sitting at the supper table one evening, he was suddenly seized with acute tearing pain at the site of the tumor, whence the pain radiated to the sides and loins up to the umbilicus and down to the scrotum and thigh. He felt nauseated and retched a good deal when he sat, and was unable to continue his meal. Believing the pain to be due to pressure of the truss, he removed it. This was immediately followed by the protrusion of the tumor, which was larger than ever before. He immediately went to bed and a physician was summoned, who arrived at 12 p. m., January 8, 1910. After examination, the physician told him that there was a complete right oblique inguinal hernia. The doctor attempted to reduce it, and after manipulating for about an hour, as the patient stated, he failed. The doctor then injected morphine in the patient's arm and went away. The patient slept for about two hours, but was restless, experienced pain, nausea, retching, and insomnia for the rest of the night, and next morning, till the doctor arrived at or about 12 noon. He tried taxis again, but failed. An assistant was called in. The patient was then placed on a table in Trendelenburg posture and anesthetized with chloroform. Under these conditions they succeeded in reducing the hernia. The truss was re-applied to protect against recurrence and the patient was put to bed. The symptoms subsided and the patient got out of bed the next morning feeling quite comfortable. He went about his work as usual for about another week, till Sunday, January 16, 1910. On that day, while sitting at the table, he was once more suddenly seized with the same symptoms as described in the previous attack, but had retching and could not vomit, as he expressed himself, he had not the habit of vomiting and could not if he tried to. He removed the truss and the entire hernia came down much more than previously and enlarged the scrotum a good deal. The patient stated that the size of the hernia was double that of a moderately sized fist. The patient went to bed and immediately sent for his physician, who

called the next morning at about 11 o'clock. In the meantime no one was called and the patient suffered great pain and from the other symptoms mentioned, making him very restless during the entire night. The physician summoned an assistant and taxis was tried but failed. The patient was then placed in the Trendelenburg posture under anesthesia by the physician's assistant and taxis tried again, but reduction was impossible. After manipulating for some time they gave it up and the doctor telephoned Professor J. D. Rushmore and consulted him about the case. In accordance with his advice the patient was immediately removed to the Long Island College Hospital, arriving there at about 9:20 p. m. the evening of January 17, 1910.

Examination of patient at the hospital: General condition of patient was apparently fair, temperature 100.8° F., pulse 110, respiration 25. On inspection and palpation a large complete right oblique inguinal hernia was discerned. Whether percussion note was dull, tympanitic, or both I do not know. It may have been dull since the patient presented symptoms of strangulation, namely, nausea, retching, much pain over site of hernia, and obstipation. These findings were corroborated by the history of the patient, previous attacks, the last one being irreducible even under a general anesthetic. It was therefore decided to prepare the patient for immediate operation, which was done in the following manner: The field for operation was shaved and the surface cleansed with tincture of green soap and sterile water. A compress of bichloride of mercury one to 10,000 was applied. Bladder and rectum were emptied. The patient was brought into the operation room at 10:30 p. m.

Operation: An incision of about four and a half inches was made, extending from a little beyond the centre of, and three fourths of an inch above Poupart's ligament to the pubic spine, parallel to the ligament. This incision divided the superficial structures down to the sac, and the constriction ring was nicked upward. The sac was identified by its silvery polish, the aboresent arrangement of its vessels, fat, and areolar tissue, and by some fluid existing within the sac. The cord was separated from the sac and held to one side. The roof of the inguinal canal was split over a grooved director, and all bleeding vessels throughout the operation were controlled. Then the sac was carefully cleared of its areolar tissue, held up by two clamps, and thus made tense. The fundus of the sac was nicked upward and the opening enlarged with the fingers. About three or four ounces of yellow, serous fluid, slightly tinged with blood, came out and the rest was sponged dry. The contents were examined. There were no adhesions nor inflammation present. There were six coils of intestine which were somewhat of a mahogany color, with its polish, and retained their natural folds. There was also some omentum present. The findings were sufficient to indicate a healthy gut, and there being no foul odor the contents were reduced into the abdomen. The sac being thick, it was therefore transfixed by a needle with suture and tied near its base. Then a pursestring suture was made through the redundant sac and sutured in the upper angle of the wound, including fibres of the internal oblique. The rest of the operation was completed as an ordinary Bassini. A new floor was made for the cord which was now covered by the external oblique, fascia, and skin. Patient was removed from the operating room at 11:30 p. m.¹

A physical examination of the patient was made by me on January 25, 1910. His general condition was somewhat anemic, muscles were of poor tone, general nutrition below par, and tissues relaxed. He had seborrhœa sicca and dry hair. Lips were pale and conjunctiva was anemic. The pupils were equal, regular border, reactions to light and accommodation and the consensual test were normal. No icterus, palsies, nor petechiae. Eyes were somewhat sunken, probably due to absorption of some of the postocular fat consequent upon general poor nutrition. There was a little spur on the left side of the nose and an enlarged inferior turbinate on right side. Mucus was seen collected in few scattered areas on posterior pharyngeal wall. Uvula was long and of an angry red color; tonsils somewhat enlarged. Teeth and gums were in poor condition. The tongue was large, flabby, coated, and

¹This description of the operation is that of Professor J. D. Rushmore.

moist. Anterior cervical glands were enlarged. Skin was relaxed and poorly nourished and of poor tone, otherwise negative.

Few sibilant and sonorous râles were heard on inspiration and expiration over the bronchial region, otherwise the chest was negative. The heart on inspection showed palpitation, and the apex beat in the fifth interspace near the sixth rib in mammary line. Palpation disclosed heaving impulse at apex, but no thrill. Percussion showed the upper border to be at the second interspace. The right border at the right parasternal line, the left border at the mammary line. At the apex, the first sound was accented, both sounds regular, good rhythm, and force, no murmurs. Basic auscultation showed second sounds accented, but no murmurs. The radial pulses were equal, regular, of good rhythm, good force, and tension and vessel walls were soft and elastic. As to the posterior chest, sibilant and sonorous râles were heard in the interscapular region, otherwise negative.

The abdomen was somewhat protuberant in contour, and tympanitic in upper portion; the rest of the abdomen was covered with bandage and could not be examined. In part of abdomen exposed I could not elicit any mass, fluid, tumor, nor tenderness. The edge of the liver was felt at the free edge of ribs. The edge of the spleen was impalpable. The kidneys were also impalpable. Knee reflexes were normal, the Babinski was negative, clonus was absent, oth-

to prophylaxis by mitigating the predisposing cause or condition as follows: Treat the bronchitis, regulate the patient's habits with regard to diet, as to time to eat his meals, and the proper manner of mastication, proper attention to his bowels, and warn him against unnecessary strain. Support the hernial rings with bandages during hours of physical labor. A grain of prophylaxis more than balances an ounce of cure.

The other factor of importance to be explained is the cause of strangulation in this particular case. In addition to the patient having repeated attacks of hernia for fifteen years, he was stricken with three severe recurrences of complete right oblique inguinal hernia December 25, 1909, January 8 and 16, 1910, respectively. With each of the latter attacks he was suddenly seized with symptoms of intestinal obstruction and the tumor was proportionately larger in each succeeding attack. It appears that the first two attacks were of incarcerated hernia, which were reducible, but finally led to strangulation of the gut in the third attack, possibly in the

January 27, 1910.	Medication.	Nutrition.	Temp.	P.	Resp.	U.	D.	Remarks.
8 a. m.	None	Full diet	99° F.	82	22	Q. S.	X	Slept well. Stitches were removed by Dr. Knoller and patient was redressed.
12 a. m.			99.2° F.	80	20			
4 p. m.			99.2° F.	80	22			
8 p. m.			99° F.	78	20			
12 p. m.			98.8° F.	80	20			
Jan. 28, 29, 30 and 31...	None	Full diet	Normal	Normal	Normal	Q. S.	X	Good recovery.

erwise extremities were negative. As to the genitals, the parts exposed appeared to be normal, except the right side of the scrotum, which appeared larger, more relaxed, and reddened than left.

January 27, 1910, another physical examination was made and the findings were the same except that the patient appeared better nourished. The abdominal dressing was later removed in my presence by Doctor Knoller. The wound appeared clean, no stitch abscess being present. The stitches were removed and patient redressed.

GENERAL DISCUSSION.

This case is of especial interest because it presents to us two important etiological factors, one of which predisposed to the occurrence of hernia, on account of the neglect to mitigate or remove the cause, and the other caused strangulation.

The family history shows that there existed an hereditary tendency which rendered the patient susceptible to attacks of bronchitis, thereby increasing intraabdominal pressure. Furthermore, the diseases of the patient's childhood had aggravated his bronchitis, and his cough was intensified, in addition to which asthma was present, thereby further increasing the intraabdominal pressure. This in turn had exerted a downward expelling force upon the visceral contents in the line of gravity against the hernial rings, weakening the latter. The patient had neglected his bronchitis, which predisposing factor exaggerated the anatomical weak point at the hernial ring. After this, it became an exciting cause instead of a predisposing factor, finally giving rise to a small tumor in the right inguinal region, first noticed fifteen years ago. The habits of the patient, constipation, and gastric symptoms may be added as additional predisposing conditions.

Such history as in a case like this, if it comes to us early, should immediately cause us to examine the hernial rings, and if hernia is not present we should bear in mind the possibility of its probable future occurrence, and hence devote our attention

following way: During the first attack about two or three coils of intestine came down and simply blocked the fecal current and not the circulation of the intestinal wall, but was reducible; in the second attack possibly four or five coils were forced down, which gave rise to more intense symptoms and difficulty in reduction, but still it was reducible under anesthesia and the Trendelenburg posture. During the third attack six coils of intestine and little omentum was forced into the hernial tumor (this fact was confirmed in the finding of the sac contents at the operation), thereby causing the additional coils that descended and enlarged the hernial tumor to act as a core obstructing the ring orifice and preventing the reduction of the hernia; beside this, the thickened sac added to the difficulty. All this led to interference of the circulation in the intestinal walls, retarding its current, and giving rise to such changes in the gut as were described in the operation findings.

While the immediate cause was the constriction by the increased number of coils that came down, the predisposing cause was constitutional in origin, namely, cough and constipation, causing increased intraabdominal pressure; on account of this continued pressure the elasticity of the ring had become diminished and the tissues were more yielding. It is also possible that there had been a congenital weakness of the ring aggravated by the pressure as described above.

It is rare, as already stated, that a case has all the symptoms of a typical case as outlined in the textbooks. This case was atypical in the following respects: Compared with the history of previous attacks, as given here, it seems that the symptoms the patient experienced in this attack of strangulated hernia were relatively mild. The patient did not vomit, but retched, which he com-

plained of only when he attempted to sit up, otherwise it proved of very little discomfort to him, save as to nausea. The more severe symptoms, such as collapse from exhaustion and marked thirst which occur in most cases, were missing here; the explanation of which we can easily discover by referring to the sac contents at the time of the operation. These were few, and are exceptional in cases where we have a history of previous attacks as in this particular case. Regarding the variations in temperature, whether normal, supernormal, or subnormal, character of pulse, whether regular, intermittent, rapid, or easily compressible, character of respiration, appearance of facies, reference to the tumor proper, as to size, shape, whether tense or doughy, relating to change of position of patient, tenderness, percussion note, condition of skin over it, and impulse on coughing (unreliable sign), I am forced to rely solely upon the statements of the patient, not having seen him prior to January 25, 1910. The report on the hospital chart shows that the patient's general condition was fair, temperature being 100.5° F., pulse 110, respiration 25, thereby indicating a mild case out of all proportion to the physical signs.

DIAGNOSIS.

It is evident that the diagnosis of this case was quite simple from the data collected from the patient's history and the visible hernia that had been irreducible, even under general anesthesia. However, we get other cases of strangulated hernia, the tumor of which is not prominent and may be mistaken for other conditions, such as *aneurysm*, where we get the expansive pulsation of the tumor and the bruit on auscultation; the intense symptoms of intestinal obstruction with obstipation are missing.

Enlarged inguinal glands, where we feel the hard nodular glands, usually not tender, no impulse on coughing; the causes being syphilis, urethritis, perineal infection; enlarged glands may be detected elsewhere; obstipation is not present.

Undescended testicle usually occurs early, about the first year; and if it remains till puberty, it is inactive. Few cases have been reported where it existed in individuals fifty years of age. The tumor is tender, and there is absence of testicle in the scrotum of the same side.

Lipoma and new growths are moved with the skin, due to their attachment thereto.

Encysted hydrocele of spermatic cord gives a uniform fluctuation, the skin may be edematous above the location, and then the cause for venous obstruction may be looked for with the appearance of superficial varicose veins. In all of these conditions the marked symptoms of intestinal obstruction, with more or less collapse and subsequent reaction with obstipation, is missing.

Strangulation of the cord by axial rotation is manifested by sudden intense symptoms, pain, vomiting, moderate shock, swelling in groin, because the testicle is usually undescended or half way attached to a long mesorchium; swelling may be in scrotum. If the testicle has descended the epididymis will be anterior, but as a rule the general symptoms are milder and the bowels not obstructed.

A safe and cautious procedure to follow in every

case where the patient is suffering from severe abdominal pain, retching, or vomiting and constipation, is to immediately examine all the hernial outlets for possible strangulation. The *gastric crises* of *tabes dorsalis* may give conflicting symptoms, but it is distinguished by lost reflexes, history of syphilis, Romberg's sign, and Argyll Robertson pupil, etc., common in *tabes*. *Biliary or renal colic* has its characteristic pain, radiating in the latter downward to the scrotum, and constipation is not present, or if so, flatus is usually also present. In *acute pancreatitis* we have sudden onset of pain, vomiting, constipation, and epigastric tumor and tenderness, rapid and weak pulse, but flatus is present and sometimes a fecal mass. Cammidge's test of the urine may be obtained, still, in most cases, exploratory laparotomy is essential. Intestinal obstruction occurs, due to bands or apertures of omentum or mesentery, or from adhesions due to previous abdominal operations; stricture of bowel, strangulation of the diverticulum beneath the adhesions of appendix, portion of mesentery or pedicle of ovarian cyst or tumor; intussusception and volvulus; as a rule all these conditions require laparotomy; and in my opinion, the common symptoms are very similar to each other and the differential symptoms too fine and delicate to make a differential diagnosis. Since these cases are operative, the abnormal conditions can be corrected at the same time without undue delay and jeopardy of the patient's life. Impacted feces can usually be felt, as a soft, doughy mass over the region of the colon. Special reference is made to the foregoing conditions because they are common in emergency cases, simulate strangulated hernia, and are mistaken for such.

COMPLICATIONS.

The operation revealed no complications in this particular case. This should not deceive us and make us feel satisfied that this case has received the ideal treatment prior to the patient's entrance to the hospital. The same treatment in other cases may have caused inflamed adherent hernia and possibly gangrenous gut. Had the latter condition occurred when the patient was given a hypodermic injection of morphine on the evening of January 8th, we could never have known the true condition, because the patient would feel relieved of his symptoms, have a "delusive calm," and probably die in that condition from collapse. But more important than that, experience teaches us that no hernia has ever been cured by support of a truss, but will return and become much larger at each recurrence, because the abdominal weak spot and the exciting factor are present. This invites complications, such as incarceration, strangulation, and their results, inflamed and gangrenous gut or omentum. I believe it is therefore proper to suggest to the patient and impress him with the necessity of an operation for the radical cure of the hernia without delay so as to prevent the complications. I also believe that most cases of recurrence of hernia after operation are found in those patients who suffer for years from hernia, and keep supporting it by a truss. Each time the hernia comes down, they reduce it

manually, thus constantly weakening the tissues in front of it, also weakening the tissues by pressure of the truss, so much so that after radical cure of hernia, there is in some cases a special tendency to recurrence after operation, for which, in many instances, the skilled surgeon is blamed. It is probable that early operation will prevent this tendency.

PROGNOSIS.

The prognosis in this case was good because of the following factors: 1. The constitutional condition of the patient was good as there seemed to be fair resistance and comparatively good nutrition due to the absence of other allied diseases, renal or cardiac, and cancer or other cachexiæ. 2. The time of operation and complications present influence the prognosis a good deal. The patient was fortunate in this case in having a timely interference before any complications developed. Present statistics show that the mortality in those cases operated in the first day of their occurrence is eight per cent.; in cases operated in on the second day, twenty-two per cent., and forty-five per cent. in cases operated in on the third day. A striking example, showing what an important factor time is in influencing the prognosis, is found in the statistics of intussusception where the mortality is but eight per cent. in cases operated in during the first twenty-four hours, and fifty per cent. after that time. We must also consider another factor, the complications present at the time of operation, such as inflamed hernia, with many adhesions, gangrene of the gut or omentum or both. Fortunately this case was void of complications, because of the general fair condition of the patient and the timely operation, therefore the prognosis was very good and the patient made a good recovery. I would suggest that several urinary specimens should have been examined before and after operation, to determine the condition of the kidney as a precaution in the prognosis and treatment.

TREATMENT.

It is very unfortunate that in such cases as this, most patients do not appreciate that time is frequently the deciding factor between life and death. The patient in discussion was very fortunate in having the truss man arrive and reduce the hernia before any complications set in, so that a healthy instead of a gangrenous gut was reduced, as a truss man could not differentiate between the two conditions. The proper thing for the truss man to do under such circumstances was to consult a physician, which he neglected to do. This unfortunately is the practice of most laymen connected in some way or other with the medical profession.

I differ with the physician's treatment of this case when he came to the patient for the first time, during the second attack, on January 8th, at 12 o'clock p. m. To administer morphine under such circumstances, where he was unable to reduce the hernia, simply masks the symptoms, and there was danger of the bowel suddenly becoming strangulated and gangrenous with fatal results. As is the rule in such cases, the so called inflammatory symptoms apparently abate when gangrene sets in and the patient feels relieved temporarily. Such treatment means the neglect of the very ideal of the

present day in the practice of medicine and surgery, which is *prevention*. If a disease had not occurred before we are called, we try to prevent any occurrence, as in infectious disease, or even surgical cases, such as hernia, when the patient has a difficult occupation or suffers from bronchitis with severe cough. It should be our duty to mitigate the cough and support the hernial ring sites with bandage or abdominal binder during the straining hours of heavy work, or order a change of the occupation of the patient, if possible. Then, again, once a disease has established itself in a patient, we must prevent complications. In hernia we must guard against strangulation.

Another factor of the physician's treatment at that time was taxis, which, however, was unsuccessful. Unsuccessful taxis does not necessarily indicate strangulation of the gut, but it should always arouse our suspicions. To make certain upon this point, taxis ought to be tried under anesthesia, and if unsuccessful when properly done, it indicates incarceration or strangulation. This is what ought to have been done in this case, and if strangulation were found, immediate operation would have been the only treatment.

It is my firm belief that after such history of two similar attacks described before, occurring one after the other with an interval of only fourteen days, associated with symptoms of intestinal obstruction, and the second attack occurring even though a proper fitting truss was worn, suggests a predisposition to another attack. Furthermore, it elicits the facts that the predisposing causes and favorable conditions such as the yielding hernial rings with the increased abdominal pressure were present and the cause of the latter, bronchitis, was left untreated and intensified by the exposure to the damp and cold weather. Hence the liability of another recurrence and probably with serious complications. This patient escaped complications, but this does not mean that other cases under similar conditions will terminate so fortunately. This case is an exception.

While I should be satisfied with successful reduction of hernia as a temporary relief, I would very strongly urge the patient to give his consent to be operated upon after the symptoms subsided, the next day, and warn him of what might happen should he refuse. This would give ample time to prepare the patient properly for operation, and allow the surgeon to work with less haste and less apprehension than he would otherwise.

The operative treatment of a modified Bassini operation for radical cure of the hernia in this case, I believe, was unique, inasmuch as a strong wall was reenforced by strengthening the weak point at the internal abdominal ring, by suturing the thick sac with pursestring suture and then with mattress suture buried in the upper angle of the wound; the operation being completed by the Bassini method, formed a new floor for the cord covered by the external oblique, fascia, and skin. Such operation affords an excellent protection against recurrence.

The postoperative treatment requires no comment; the patient made an uneventful recovery and was discharged from the hospital, February 1, 1910.

104 SECOND STREET.

CHOREA.*

History of a Case, and Remarks.

BY P. H. MARKLEY, M. D.,

- Camden, N. J.,

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Chorea is divided typically into two forms, the acute and the chronic. The acute is also known as Sydenham's chorea, and is subdivided into the minor, the severe, including *chorea insaniens* or *status choreicus*; the gestational form and the paralytic chorea minor, or as it is frequently called Saint Vitus's dance, is the most common form, occurring during the middle and later periods of childhood, rarely before the age of five years, nor after puberty, largely predominant in female children, and is the form with which we are all more or less familiar.

There are various other forms described and classified as minor, such as the habit spasm, the so called convulsive tic of the French, sometimes termed Tanelli's disease, consisting of involuntary movements and explosive utterances, frequently profane or vulgar. Then there is a form known as rhythmic or hysterical chorea. It not infrequently involves the sternomastoid, causing rhythmic movements of the head; and Dubibi, of Naples, has described a disease which bears his name, consisting of electriclike movements, and also known as electric chorea; strange to say, it has never been seen outside of Italy.

The second grade of Sydenham's chorea, the severe form, consists in a marked exaggeration of all of the symptoms of the mild form, to the degree, in many cases, of the patient becoming speechless as well as helpless, and the still more aggravated form, with mental symptoms added, of a maniacal character. It then becomes, as Osler describes it, "a terrible ordeal." This is the form known as chorea insaniens or status choreicus. Such conditions, it should be borne in mind, may develop from an ordinary, apparently mild case, and are usually fatal. The gestational form may occur during pregnancy, or not until post partum. It is usually of much shorter duration than the ordinary form, and when occurring ante partum is very liable to induce abortion, in which event the movements cease as soon as the uterus is emptied. The mortality is quite high in this form, being estimated at about thirty per cent.

The paralytic form is not infrequently seen, the paralysis consisting generally of a hemiplegia. The prognosis is favorable in these cases, which end in complete recovery. There are also described post-hemiplegic chorea, and senile chorea, their titles indicating the conditions in which they are met. Chronic chorea is known as Huntington's disease and differs radically from the acute or Sydenham's in that there is an organic origin, the lesion being in the central nervous system, a chronic diffuse cortical encephalitis, and not unlike the condition often found in general paralysis. In fact, it differs so radically, not only pathologically, but clinically, that it really has no connection with the Sydenham's variety.

The chief etiological factor in Huntington's disease is heredity, having in one notable instance been traced through five generations. Also, unlike ordinary chorea, it is essentially a disease of adult life, rarely occurring before from the thirtieth to the forty-fifth year, developing insidiously and without intermission, until it terminates in marked spastic paralysis, with pronounced dementia. Though patients with this disease generally live from ten to twenty years, it is invariably fatal.

To attempt to study the etiology of chorea would involve a multitude of detail, without arriving, I fear, at any clearly definite ideas and quite as various are the numerous supposed pathological findings. The condition is best expressed by Osler, in these words, "Nothing definite has as yet been determined." In the study of the etiology, however, the supposed close association of chorea with rheumatism seems to have been disproved, as a recently carefully prepared table of a large number of cases shows the rheumatic diathesis to have been present in but twenty-one per cent. of the cases. Certain it is, however, that the most feared complications of chorea are the usual complications of rheumatism, namely, heart conditions, especially endocarditis. Per contra it is equally true that the remedies that are almost specific in the treatment of rheumatism, the salicylates, have but little if any effect in controlling chorea. During my term of service last winter, a case occurred that seemed to me to be of special interest:

A young woman, aged twenty years, of medium height, stout, almost masculine in appearance, was admitted, suffering from a moderately severe attack of chorea. As she was a foreigner (Austrian), and could speak no English, nor could her friends, we were unable to elicit any detailed history. As near as could be ascertained, her father and mother were living and in good health. She had never had a prior attack of chorea. One year previously she was married, her age then being nineteen, and had been delivered, after a normal labor, just one week before her admission. At that time, she was suffering from a severe suppurating mastitis, the abscess having been incised the day before admission. The baby was not with her. It was said to be of the average size and healthy. Other than the mastitis, no other symptoms were apparent that might be considered sequelæ of the labor, the lochia being apparently normal for that period.

We understood with difficulty that the choreic symptoms were not manifest until after the breast had become inflamed. The day of her admission she had driven from Riverside in a wagon, and upon arrival was said to be having almost constant, convulsive movements, which were controlled only by hypodermic injections of one quarter grain of morphine.

The following morning, while the choreic movements were general, yet one side seemed to participate more than the other, though from that time the disease ran an uneventful course, showing marked improvement each day, until by the end of one week, the patient had practically recovered, being free from any convulsive movements and eating and sleeping fairly well. During this period the breast received careful attention, and though still suppurating at the time of her discharge, yet was very much improved. At the earnest solicitation of her husband, in which she participated, she was discharged upon the eighth day, being able to proceed home with him on the train.

Just two weeks later she was readmitted, with all of the choreic symptoms intensified, convulsions, and wild delirium. At the end of twenty-four hours she was moribund, dying a short time later. During the original attack her temperature ranged from 100° to 102° F., which was thought to be largely due to the breast condition. Upon readmission the temperature was 104° F., continuing to rise until

*Read before Cooper Hospital Clinical Society, October 16, 1912.

the time of her death. The breast was more swollen and suppurating freely.

As this was the first fatal case of chorea that had ever occurred under my observation, and other than Huntington's chorea, not having any knowledge of any fatal case, I began to review the literature of the disease more carefully than ever before, arriving at the following conclusions:

It was, I believe, a case of the gestational form, occurring post partum, as the ordinary form is rare after puberty. I do not recall having seen a primary case occurring at that age, although I do recall one recurrent case. Then, again, the duration is much shorter in the gestational form. It will be recalled how the woman improved the first week in the hospital, and in the light of our later knowledge, it would have no doubt have been much wiser had she been detained for a somewhat longer period, and this brings to mind another thought, and that is, to what extent did the large infected, suppurating area which she had intensify the condition, or even act as a causative factor? Bearing upon this phase I have been able to find some references in the literature.

Berkley, of Johns Hopkins Hospital, reports a case of chorea insaniens in a woman of twenty-seven years; the autopsy showed a suppurating parotid gland and catarrhal pneumonia. Dr. J. M. Miller, commenting upon a fatal case of chorea before the Philadelphia Pediatric Society, said: "The boy had a very septic appearance, and he thought that some infection apart from the chorea might have been a contributory factor in his death." The following, by a Russian investigator, is taken from Sajous's *Cyclopadia of Practical Medicine*: "Recent investigations go to show that chorea is of pyogenic origin, staphylococci having been found in the blood, in two personal cases." And in the same volume another author says, "Not rarely the disease is of streptococcic origin."

However, there are but a few isolated cases and do not by any means establish the pathology, though of sufficient significance perhaps to indicate the infectious nature of chorea, and the day may not be far distant when the particular germ will be isolated.

The symptoms accompanying the last few hours of the case under consideration, were highly suggestive of meningeal involvement, on account of which an autopsy was asked for, but refused; though, in the light of our present knowledge, we may, I think, regard it as a case beginning in the ordinary manner, and developing the status choreicus or chorea insaniens which, as before stated, is said to be nearly always fatal, and without any definite pathological lesions, and I presume until the pathologist points out some definite, fixed and permanent lesion, chorea will continue to be considered a neurosis. Nor is the etiology any more definitely determined, though I believe that the profession would have a clearer idea of both if the word chorea were limited in application to the Sydenham's variety, giving Huntington's chorea, which is, as we have seen, an entirely different affection, its proper classification under organic diseases of the nervous system.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXI.—How do you treat psoriasis, and with what success? (Closed February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

CXXXIII.—How do you treat influenza, especially in view of sequelæ? (Answers due not later than April 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXX has been awarded to Dr. Arthur L. Fuller, of Colorado City, Texas, whose article appears below.

PRIZE QUESTION CXXX.

THE TREATMENT OF SUBACUTE AND CHRONIC LARYNGITIS.

BY ARTHUR L. FULLER, M. D.,

Colorado City, Texas.

The successful treatment of these laryngeal inflammations depends almost entirely on the recognition of the fact that in the large majority of cases they are but local evidences of some systematic derangement, or results of some abnormality of neighboring structures; for, while chronic laryngitis may occasionally occur from excessive or improper use of the voice alone, it rarely does so in the absence of some systemic predisposing cause. While chronic laryngitis frequently begins as a chronic process, subacute laryngitis is either a misnomer for a very mild case of acute laryngitis, or an intermediate condition between acute and chronic laryngitis; the acute laryngitis being due to some exciting factor occurring to a patient predisposed by one of the above mentioned conditions, and failing to end in resolution because of that condition, passing into the chronic form through the intermediate one of subacute laryngitis. Hence we must recognize the etiological importance of other conditions outside the larynx in treating these laryngeal diseases; for whether they begin in the acute or chronic form, systemic derangements, or abnormalities of nearby structures play an important part, if not strictly causative, certainly one hostile to cure.

There are several conditions outside of the larynx which tend to prevent recovery, and the treatment of which is as fully essential to cure as any treatment directed to the local condition. They may be divided into three classes:

1. Abnormalities of neighboring structures;
2. Derangements of the general system;
3. Improper habits, surroundings, etc.;

and any or all of these must be corrected as far as possible before we can expect any good results from local treatment, indeed in many cases the correction of these will bring on a cure without local treatment.

The abnormalities of neighboring structures produce their effects by causing defective breathing, irritation from constant coughing and hawking, and by direct extension or infection from their discharges; and the existence of any such conditions will alone prevent successful treatment. Hence nasal defects must be remedied and proper nasal respiration secured that the air may be moistened and warmed before reaching the larynx; any cause of constant or frequent coughing, such as elongated uvula, wax in the ears, etc. I had one case in which the removal of wax from one ear relieved a constant cough of some months' duration, and the relief of cough was followed by the disappearance of hoarseness and laryngeal discomfort. Infective processes in the mouth, such as dental caries and pyorrhœa alveolaris, should receive attention.

Any general systemic derangement, such as rheumatism, gout, or anemia, disturbances of the gastrointestinal, hepatic, renal, or circulatory systems, must receive the most careful attention; for it is folly to expect results from local treatment as long as the blood supply is loaded with the deleterious products due to imperfect metabolism of indigestion, hepatic deficiency, or the toxic substances present in renal insufficiency, or if the supply of nutriment to the part is lessened owing to lack of oxygen carriers in the blood, or by sluggish flow due to circulatory disturbances. The toxins of rheumatism, gout, or overloaded intestines must also be removed. The presence of tuberculosis or syphilis affords special indications for general treatment, for a chronic laryngitis is often present in these diseases, which, while not presenting the granulomatous features or ulcerations characteristic of local tuberculosis or syphilis, will fail to improve in the absence of suitable constitutional treatment.

Improper habits, surroundings, etc., include all errors of diet, drinking, smoking, atmospheric and occupational surroundings, and improper or excessive use of the voice. The existence of any of these must be remedied. Alcohol, tobacco, and improper or highly flavored foods have an injurious influence on these laryngeal conditions, not only by toxic substances in the blood supply which are due to their use, but by their direct irritating effects on the larynx; and dustladen or impure overdry air, and excessive or improper use of the voice have an equally malign influence in the local irritation they produce. These habits and surroundings must therefore be changed; alcohol and tobacco must be strictly prohibited, also the use of highly spiced food, and the patient removed to surroundings in which the air is as pure and as free from dust as possible. Generally speaking, the moist, balmy air of the southern seacoast is best in these cases, but every patient is a law unto himself in this respect, and experience is the only true guide

in each case. Rest is one of the most important elements in these as in all other irritative conditions, and the use of the voice should be prohibited or limited to low tones or a whisper and to infrequent occasions.

A discussion of the details of carrying out this treatment, especially as regards neighboring structures and general systemic derangements, would be out of place here; covering, as it would, more than half the field of internal medicine, rhinolaryngology, and straying into dentistry. But, if this general treatment is instituted, many cases will improve or end in recovery without local treatment, since the cause is removed.

The local treatment of subacute and chronic laryngitis varies with the stage of the disease; the earlier stages of the former being more related to acute than to chronic laryngitis. It consists of measures for the relief of cough, hoarseness, and local discomfort, and those which have for their object the absorption of products of inflammation, and restoration of the local circulation to its normal condition.

For the relief of cough, hoarseness, and local discomfort, I have found nothing to equal steam inhalations, medicated or otherwise; therefore I keep the patient, when possible, in a room whose atmosphere is impregnated with steam; in addition to which I prescribe direct inhalations of medicated steam from two to four times daily, the drugs added being menthol, guaiacol, terebene, camphorated tincture of opium, or compound tincture of benzoin, either singly or in various combinations. I feel sure that, in addition to the temporary relief, these inhalations have a beneficial effect on the course of the disease by increasing the local circulation and in this way assisting absorption of inflammatory deposits. As local applications I use some astringent, applied to the larynx with a swab, after cleansing the parts with an alkaline spray to get rid of any excessive or tenacious secretion which may be present. The solutions I use are silver nitrate, from two to ten per cent.; zinc chloride, from two to five per cent.; and aluminum naphthol-sulphonate, from two to five per cent., varying the strength according to the stage of the disease and the reaction produced, and changing from one to another. I make these applications daily or every other day.

CONCLUSIONS.

In treating these cases, I, 1, give a good cholagogue cathartic, followed by daily salines, partially to deplete the bloodvessels and remove the products of intestinal sluggishness; 2, correct any derangements of the general system, gastrointestinal, hepatic, renal, circulatory, gouty, rheumatic, syphilitic, or tuberculous, as far as possible; 3, remove any abnormal conditions of mouth, nose, nasopharynx, or other neighboring organs; 4, place the patient in favorable surroundings, climatic, atmospheric, etc.; 5, interdict tobacco, alcohol, improper food; and, 6, prohibit as far as possible the use of the voice, restricting it to low tones or a whisper and to as few occasions as possible.

These measures for systemic treatment and cor-

reactions of defects of near by structures are of course used at the same time; and coincidentally I use the following local methods, as described above:

1. Steam inhalations, a good combination being

R	Menthol, ...	gr. xx;
	Guaiacol, ...	℥.xxx;
	Paregoric	℥.iii;
	Friar's balsam, q. s.	℥.iv.

M. Fiat inhalatio. Sig.: Use two teaspoonfuls to a quart of boiling water, the steam to be inhaled 10 minutes two to four times daily.

If secretion is deficient, I add terebene, thirty minims.

2. Cleansing with alkaline spray.

3. Local applications with swab, silver nitrate, zinc chloride, or aluminum naphtholsulphonate, used in varying strengths and changed from time to time, as indicated above.

Finally, before discharging the patient, I give instructions for the future, calling his attention to any systemic derangement present or likely to return, and advising him to keep his whole system under watch and in good shape; and in those cases which occur as a result of excessive or improper use of the voice, in singers or public speakers, I strongly urge a course of instruction in the proper methods of voice production as the only chance of preventing a return of the laryngitis, for I feel sure it is faulty methods rather than excessive use which is the etiological factor in these cases, as is shown by its rarity in well trained singers compared with public speakers, who have rarely had training in voice production.

(To be concluded.)

Therapeutical Notes.

Paraspecific Serum Therapy.—Darier, at a meeting of the Society of Therapeutics, Paris (*Revue de thérapeutique médico-chirurgicale*, June 15, 1912), recommended the administration of antidiphtheritic serum by mouth at the beginning of various infectious diseases. All infections start with a condition of general prostration, due to acute intoxication, which interferes with the defensive reactions of the organism. The chief desideratum is therefore to reinforce the resisting power of the body at this particular time by the introduction of some appropriate agent from the exterior. It has been shown experimentally that normal blood serum contains protective antibodies; but immunizing sera are unmistakably better still. Ten grammes of antidiphtheritic serum, taken in the twenty-four hours in any desired flavored preparation, will, if in continued for three or four consecutive days, often bring the organism back to normal; if not, a bacteriological diagnosis in the meantime will probably have furnished more precise indications for specific treatment, and no harm will have been done. By this form of paraspecific serum therapy, the author asserts, the great majority of infectious disorders of the eye, even acute endogenous infections such as iritis, iridochorioiditis (whether rheumatic, gonorrheal, syphilitic, or other) can be allayed or entirely arrested by a few doses of serum. In all these cases, pain ceases six or eight hours after the treatment is begun, sleep is more prolonged and quiet, and on the following day a distinct euphoria

is manifest. The same effects are noted in many other acute conditions, e. g., influenza, herpes zoster, erysipelas, acute bronchitis or bronchopneumonia, phlegmonous inflammations, etc., provided the treatment is begun at the outset. In some cases of influenza with intense rhinitis, the discharge and headache were observed to disappear in a few hours, and did not return subsequently. The advantage of administration of serum by mouth is that all danger of serum intoxication is thereby avoided. While the digestive juices partially destroy the serum, it is mainly the albumoses which are thus acted on. The antitoxines are only in part broken down, while the hormones, or internal secretions, are absorbed *in toto*, and play an important rôle in the benefit produced. Antistreptococcic and other sera were also tried by the author, but the antidiphtheritic serum alone gave trustworthy results.

Enucleation of Tonsils.—Lindley Sewell, in the *Practitioner* for September, 1912, enumerates the pathological conditions indicating removal of the tonsils as follows: 1. Sepsis, as shown by recurring attacks of tonsillitis and by a pale, sodden, or grayish appearance of the organ, with exudation of cheesy debris from the crypts and usually enlargement, so that the tonsil projects inward, beyond the level of the faucial pillars. 2. Enlargement of cervical glands. This the author regards as one of the strongest indications for enucleation, since it is proved thereby that there are pathological changes situated deeply in the tonsil, up to its capsule. Use of the guillotine will not suffice, as the tonsil is completely removed by it only in a small percentage of cases. 3. Simple chronic hypertrophy, with obstruction to breathing. Although the guillotine frequently gives good results in this class of cases, recurrence sometimes follows, and moreover, if the removed tonsil is examined it is often found to present evidences of disease at the bottom of the crypts; enucleation is therefore preferable.

A mere slight enlargement of the tonsils does not indicate operation, and if the organ still appears healthy, pink, and clean, attention to the nasopharynx by removal of adenoids, and to the teeth, is all that is required.

Treatment of Exfoliative Dermatitis.—E. H. Molesworth and A. Verge, in the *Australasian Medical Gazette* for August 31, 1912, report the case of a man, aged twenty-five years, who had had psoriasis from childhood until two years before, where, after a severe course of chrysarobin treatment, the condition changed to one of exfoliative dermatitis. The entire body surface was red and covered with large, regular scales which were produced in great profusion. Four doses of salvarsan were given intravenously, but this did not do as much good as thyroid extract, which was begun in doses of two grains (0.12 gramme) and gradually increased up to fifteen grains (one gramme), three times daily. This was taken for a fortnight without any pulse acceleration or mental disturbance, the patient being kept in bed. The dose was later reduced to five grains (0.3 gramme). Locally, a zinc oxide ointment with two to three per cent. of salicylic acid was used. Marked improvement occurred, all tendency to scaling disappearing, though slight redness remained for a time.

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NEW YORK, SATURDAY, MARCH 1, 1913.

REPORT OF THE COMMISSIONER OF IMMIGRATION.

The annual report of the commissioner of immi-
gration at the port of New York in reference to
Ellis Island affairs, for the year ending June 30,
1912, has just been issued. We regret that we have
not space even to abstract this valuable document,
but we may direct our colleagues' attention to the
able discussion of such matters as the admission of
the feeble minded and of alien criminals, and of
important defects in the law as it stands at pres-
ent. The insufficiency of our regulations and per-
sonnel to control the entry of the feeble minded is
an enormous source of expense to the taxpayers.
and one important suggestion in this report is that
surgeons should be placed on immigrant vessels in
order that they may inspect the passengers during
the voyage. The menace of the offspring of the
feeble minded who are permitted to land should be
borne in mind.

As to alien criminals, it is not generally under-
stood that only those who have been convicted may
be excluded under our laws; the government makes
no attempt to obtain the valuable information con-
tained in foreign criminal records. Furthermore,
aliens are not deported who commit crime within a
given period of landing, an omission that should be
rectified at once.

Some of the defects mentioned and suggestions
made by Commissioner Williams are: The fact
that steamship companies bringing in insane per-
sons are subject to no fine; these companies
should also be made to pay the cost of main-
taining immigrants pending examination, even
if the latter are eventually admitted; no fine
can be imposed for the frequently inaccurate
information in the ships' manifests concern-
ing aliens; it is not possible adequately to pun-
ish those responsible for the escape of aliens from
vessels; it should be made a penal offense to inter-
fere with an immigration officer while performing
his duties under the law; the immigration authori-
ties should be clothed with power to search vessels
to determine whether aliens are concealed on board
whom it is intended to land at a favorable oppor-
tunity; the law concerning contract labor is fre-
quently violated, and thousands of aliens come here
annually as a result of encouragement and solici-
tation; an alien may be refused at one port, after
great trouble in reaching a conclusion as to his in-
eligibility, yet through oversight he may secure ad-
mission at another port; paupers and sufferers from
physical defects should be strictly forbidden to re-
turn within a stated period.

We commend the report itself to our friends, for
we have merely sketched one or two points dis-
cussed therein and the entire question is of great
moment to every thinking citizen, while it is of
practical as well as academic interest to physicians.

NORMAL HEART SIGNS AND THEIR UNNECESSARY TREATMENT.

Clinicians who have had any considerable expe-
rience in the treatment of heart disease sooner or
later ascertain that, in young people especially, cer-
tain abnormal signs resist all measures and that such
signs are quite compatible with normal health. In
a recent paper before the Royal Society of Medi-
cine (*Proceedings*, January 13, 1913) James Mac-
kenzie, whose special competence in cardiac disor-
ders is well known, reaches the conclusion, after a
special study of the subject in a large number of
young people and after taking "tens of thousands"
of tracings, that many such people have been and
are being subjected to various forms of active treat-
ment for phenomena deemed morbid, which experi-
ence has taught him to be signs neither of disease
nor of impairment. Candidates for insurance and
for the Government services are rejected if they
show any intermission of the pulse at rare intervals,
even though such irregularity is of little or no im-
portance. A mitral murmur, systolic in time, is
dubbed "mitral disease with good compensation" if
there are no signs of heart failure, although certain

functional murmurs, systolic in time, with their position of maximal intensity at the apex, base, or midsternum, not only are consistent with perfect health, but never lead to the slightest sign of heart failure. Briefly, functional murmurs and irregularities may, in the young, according to Mackenzie, be manifestations of a perfectly healthy heart, and are of significance only when associated with impairment of the heart muscle.

As to the evidences by which impairment of the heart muscle may be recognized, Mackenzie attaches importance to a change in the size of the heart due either to dilatation or hypertrophy of its walls. Yet there being no standard size, shape, or position of the organ, especially in young subjects, it is only where the morbid changes are very marked that little difficulty is experienced in recognizing them. If this is associated, in a functional disorder, with a persistent increase in the rate of the heart and marked loss of power, a valuable indication of muscular lesions is formed. In this connection, however, it is well to bear in mind that impairment of the heart muscle sufficient to endanger life may be present without increase in the size of the organ. A systolic functional murmur should not be considered to be due to dilatation; it may appear in hearts normal as to size and may be evanescent, occurring in some only when they are lying down, in others only when standing, or during excitement, or even while the heart is beating slowly and quietly. Here again, however, we may have marked dilatation with considerable heart failure and with no functional murmurs present. The view so widely held that functional systolic murmurs indicate regurgitation, and that in consequence there is danger of this regurgitation embarrassing the heart and leading to heart failure is regarded by Mackenzie as having no existence in fact. He aims to ascertain also how the heart responds to effort by studying the effects of exhaustion through subjective symptoms.

On the whole, reserve in diagnosis, particularly if the interests of the patient are harmed by a pessimistic estimate of his condition, is in order. We might add that the whole field of physical diagnosis concerning cardiac disorders seems to require a searching analysis with the view to the elimination of what erroneous conceptions it may contain.

AS TO ANTINARCOTIC LEGISLATION.

It is not without significance as to how legislation is managed too often in this State that the bill concerning the sale of cocaine now under legislative consideration has been fathered and fostered solely by laymen. No one doubts the purity of motive of these gentlemen, which is to save countless victims

from a fatal habit, but their methods are open to criticism. Has any of these men investigated the characteristics of this drug, its source, its method of preparation, its dose, its indispensable uses in medicine? In reducing medical men to the level of peddlers, have they taken any trouble to find out how they use cocaine, to ascertain if the proposed law will interfere with the proper practice of rhinology or ophthalmology for example? Have they, perchance, learned how welcome a handicap they would lay on the oculist from the standpoint of the irregular "optometrist"? In the country districts the lack of a newly made solution of cocaine might lead to grave results in the case of a finger damaged by machinery on the farm or in the factory.

The forces behind another bill concerning narcotics are also nonprofessional, but its sponsors seem to be singularly well informed, and are also remarkably ready for a long procession of habitués toward a certain sanatorium—or is it to be a chain of sanatoriums? There are unfortunately many hundred constant users of opium or its derivatives who are perfectly justified, such as sufferers from malignant neoplasms, chronic articular rheumatism, diabetes, and other chronic and painful diseases. Are these men to be subjected to an examination every three weeks by specially authorized physicians—authorized by whom?—or is it not sufficient that their regular medical advisers are satisfied that opium is being ethically exhibited? There are undoubtedly dyscrasias which offer only a dilemma to the unfortunate victims; unceasing pain or narcotism. We hear nothing of these subjects from the sponsors of the present bill.

We hope the legislature will promptly throw out all bills for the regulation of the sale or prescription of drugs that do not bear evidence of careful drafting by fully informed medical men. We exclude from this class physicians connected directly or indirectly with homes or sanatoria for the treatment of narcotism; they never see what we may call the justifiable cases of drug habit, their experience being limited mainly to the irresponsible wealthy addicts, a fact which gives them inevitably a distorted view of the entire narcotic question. The every day general practitioner, as well as the specialist, should be on his guard against legislation of this class, which will not only hamper and degrade him, but form a precedent for heaven knows what further sumptuary lawmaking.

The growth in the illegitimate use of narcotic drugs undoubtedly proves the necessity for some additional restrictions on their sale, but no merely local regulations can be entirely effective. The least objectionable proposals yet made are those contained in the Harrison bill now before Congress. As has

already been stated, this bill provides for the registration of every retail dealer in opium, coca, and their derivatives, and includes physicians as retailers. All retailers will be required to keep records of their purchases, which can be checked off by the records which wholesalers are required under the law to keep of their sales. In this way the local authorities will be able to trace supplies and secure convictions under local laws where an illicit use is made of these supplies. While the Harrison bill subjects the physician to a disagreeable espionage, we believe that the medical profession as a whole will be willing to submit to this, provided it enables the authorities to prevent the illegitimate sale of narcotics and is not supplemented by ridiculous or suspicious local laws.

FRIEDMANN'S PREPARATION.

Dr. F. F. Friedmann of Berlin, who has become rather unpleasantly well known through the advertisements he received in the American press with his so called remedy for tuberculosis, has arrived in New York.

In our issue for February 15th we spoke editorially of his preparation, and an article on this subject by H. J. Achard, of Chicago, appears in the same issue. As our readers will remember Doctor Friedmann's assertions are based upon a paper read before the Berliner medizinische Gesellschaft, with clinical demonstrations, a report of which appeared in the *Berliner klinische Wochenschrift* for November 18, 1912. After that date, the German medical journals made no mention of this so called remedy, until, at a meeting of the Berlin society on January 29th, Professor Bier made a statement disclaiming any approval of Friedmann's statements, saying that, on the contrary, he was very doubtful of its beneficial effects. He remarked significantly: "*So far, the discovery has not stood the test, especially as it has been in the hands of only one physician, and a careful investigation has not been possible.*" This statement of the well known Berlin surgeon was fully approved by the four leading German weeklies.

ANNUAL REPORT OF THE NEW YORK STATE DEPARTMENT OF HEALTH.

The thirty-second annual report of the State Department of Health of New York for the year ending December 31, 1911, has appeared. It is a voluminous book, containing 1,232 pages and giving a wealth of information. We note that the death rate at all ages per mille was for 1911 15.5 while for 1910 it was 16.1. The only two age periods in which the death rate has increased were from forty to fifty-nine years and sixty to seventy-nine years. The communicable diseases which must be reported by the physician are diphtheria, measles, cancer,

smallpox, tetanus, whooping cough, laryngeal and pulmonary tuberculosis, lobar pneumonia and bronchopneumonia, typhoid fever, cerebrospinal meningitis, scarlet fever, epidemic poliomyelitis, and hydrophobia; the cards furnished free to the physician are distinguished by different colors. A great amount of public educational work has been done with the intention to improve the health of the inhabitants of our State. The report of the chief engineer referring to sewage and sewage disposal shows the indefatigable watchfulness in this respect. Other items of interest are the special investigations of public water supplies and of the sanitary conditions of cities and villages. The book concludes with the proceedings of the Eleventh Conference of the Sanitary Officers of the State, in which many interesting articles are to be found.

DISEASE IN JERUSALEM.

At a meeting of the Société de médecine et d'hygiène tropicales in Paris, on January 30th, Segal presented, according to *Presse médicale* for February 12, 1913, the result of his studies of disease at Jerusalem. He had found a strong disposition on the part of the local physicians to attribute the majority of fevers to malaria, and in several cases of undoubted typhoid he had had difficulty in securing acceptance of his diagnosis. Hemoglobinuric bilious fever, which had been unknown for nearly three years, was now rapidly increasing in the city. After malaria trachoma occupied the second rank as to prevalence, preventive measures being extremely difficult to enforce on account of nearly every child in the public schools being infected. Oriental boil, known in Jerusalem as the Jericho boil, was by no means rare, but, contrary to the general rule, the skin lesions were multiple.

RADIUM IN MALIGNANT DISEASE.

According to *Semaine médicale* for February 12, 1913, Dominici communicated to the Académie de médecine on the previous evening, in his own name and in the names of H. Cheron and Rubens Duval, the result of a series of researches into the treatment with radium of tumors of grave prognosis. He stated that results had been encouraging in deep angiomas of the face and neck, also in superficial epitheliomas. He and his colleagues had used the agent in deep tumors only as a palliative and had obtained mainly temporary effects, save in some profound affections of the parotid, of the neck, and of the uterus, where there had been no recurrence from the clinical viewpoint for some four years. Notwithstanding this encouraging report, Dominici averred that it would be best always to use radium in conjunction with appropriate surgical measures.

ANTITYPHOID INOCULATION IN THE FRENCH NAVY.

Chantemesse reported to the Académie des sciences in Paris on January 20th, according to *Presse médicale* for February 5, 1913, on the sterile vaccine which in conjunction with Widal he produced in 1887, and after successful experiments on

animals, used in 1896 on human beings with equally happy results, which had since been repeated in all parts of the world. Recent trials had been made, by direction of the minister of war, on the troops in Algiers, and last April the minister of marine ordered vaccination of all the crews in the navy as well as of the workmen in the various ports. Out of 3,107 men inoculated, in none had typhoid fever developed, while there was a steady morbidity of one per cent. among the uninoculated.

Obituary.

WILLIAM CONRAD WILE, M. D.,
of Danbury, Conn.

Doctor Wile died at his home in Danbury, on February 21st, in his sixty-seventh year. He was born at Pleasant Valley, N. Y., January 23, 1847, his father being a clergyman, and at the age of fifteen years enlisted in the Union army, serving two years as hospital steward, being present at the battle of Gettysburg, and taking part in the march to the sea. He graduated in medicine from the University of New York in 1870 and subsequently practised at New Brunswick, N. J., Highland, N. Y., and Newtown, Conn., finally making his home at Danbury; in 1886 he was appointed professor of diseases of the nervous system and of electrotherapeutics in the Medico-Chirurgical College of Philadelphia. Central College of Kentucky conferred upon him the degree of A. M. and Rutherford College of North Carolina that of LL. D. He was married twice, his second wife surviving him. He founded and edited the *New England Medical Monthly*, ultimately merged in another publication, and was a voluminous writer on medical, particularly therapeutical subjects.

News Items.

New York Psychoanalytic Society.—At the annual meeting of this society, held in January, the following officers were elected: President, Dr. H. W. Frink; vice-president, Dr. B. Onuf; secretary, Dr. A. A. Brill.

Civil Service Examinations.—Among the positions for which the New York State Civil Service Commission will hold examinations on March 22d are the following: Chief medical officer, health officer's department, Port of New York, \$2,000 (for men only); dietitian, health officer's department, Port of New York, \$900 and maintenance (for women only); assistant physician, Iola Sanatorium, West Brighton, Monroe County, \$300 to \$600 (for men only). Application blanks must be filed on or before March 14.

A Distinguished Dinner Party at Norfolk, Va.—On February 21st, Dr. Wilson E. Driver gave a dinner at the Monticello Hotel, Norfolk, Va., to which were invited, among others, the Honorable Messrs. Phillips L. Goldsborough, governor of Maryland, Locke Craig, governor of North Carolina, Cole L. Blease, governor of South Carolina, William Hodges Mann, governor of Virginia, Joseph M. Brown, governor of Georgia, Emmet O'Neal, governor of Alabama, Park Trammel, governor of Florida, Luther E. Hall, governor of Louisiana, Oscar B. Colquitt, governor of Texas, Earl Brewer, governor of Mississippi, Joseph T. Robinson, governor of Arkansas; Surgeon General Rupert Blue, of the United States Public Health Service; Dr. W. S. Thayer, Dr. C. F. Craig, Dr. C. C. Bass; the editor of the *NEW YORK MEDICAL JOURNAL*. At the conclusion of the dinner there was a symposium on Malaria of the Atlantic Seaboard.

Academy of Medicine and Cocaine Legislation.—We hear from an authoritative source that the Section in Laryngology of the New York Academy of Medicine, at a special meeting held on February 26th, strongly condemned the proposed action on the sale of cocaine by the New York Legislature; at this meeting a resolution was passed to that effect. The committee on legislation of the New York Academy of Medicine has also taken up the matter. Furthermore, the same authority has informed us that the Medical Society of the County of New York has also strongly condemned the proposed legislation.

Corrected Schedule of Harvey Lectures for March.—The following lectures will be given during March instead of those originally announced: March 8th, Professor Edward G. Conklin, of Princeton University, on the Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence, and Rejuvenescence; March 22d, Professor Franz Knoop, of the University of Freiburg, on Modern Problems of Nutrition; March 29th, Professor John Howland, of Johns Hopkins University, on the Scientific Basis for the Artificial Feeding of Infants.

Autopsies at the Children's Hospital.—An act has been introduced in the Senate of the State of New York providing for an amendment of the greater New York charter in relation to autopsies at the New York city children's hospitals and schools on Randell's Island. The amendment reads as follows:

§681. Upon the death of any patient in the custodial part of the New York city hospital and schools at Randall's Island, who shall be maintained therein wholly at public expense, the commissioner of charities may, in his discretion, issue a permit for an autopsy on the body of such patient, to be made by a member or members of the medical staff of such institution; but such autopsy shall be made not later than twelve hours after the death of such patient. The commissioner of charities shall cause to be printed conspicuously upon the application blanks used in admitting patients to such institution the fact that he is authorized to issue permits for making such autopsies.

This act shall take effect immediately.

Philadelphia Civil Service Commission Examinations.—On March 21st an examination will be held by the Philadelphia Civil Service Commission for the position of physician in the Bureau of Police Department of Public Safety, with a salary of \$4,000 a year. Applicants must be graduates of a recognized medical school and must have been actually in the practice of medicine for at least five years. The duties are to examine and prescribe treatment for sick or disabled members of the police and fire departments; to attend large fires and large assemblages of the public, and assume charge of the physicians present, and of the arrangement of ambulances and patrol wagons; to instruct the officers of these bureaus in the principles of first aid to the injured. Applicants must have ability to manage, control, and direct the district surgeons of the bureaus. On March 25th the commission will hold an examination for the position of assistant resident physician, Department of Public Health and Charities, with a salary of \$600 to \$900 a year. Applicants must be graduates of a recognized medical college and registered in the State of Pennsylvania. Institutional experience is desirable, but not necessary. Residence at the hospital will be required in case of appointment.

Personal.—Dr. Charles Lewis Gandy, of Ocean View, N. J., Dr. Robert Henry Wilds, of Columbia, S. C., and Dr. George Henry Buck, of Portland, Ore., have successfully passed the January examination for commissions in the Army Medical Corps. They will be ordered to the next session of the Army Medical School, Washington, D. C., beginning October 1, 1913.

Dr. Friedrich Franz Friedmann, of Berlin, arrived in New York on February 25th. The object of his visit to the United States is to demonstrate his new treatment for tuberculosis.

Dr. I. L. Nascher, of New York, has been appointed professor of geriatrics in the College of Physicians and Surgeons, Boston.

The trustees at the National University of Arts and Sciences of St. Louis announce that a contract was signed February 21, 1913, for the building of \$5,000 worth of apparatus for use in the physiology laboratory of the medical department (American Medical College) of the university. Dr. Bernard Blass, formerly of New York, has been elected professor and head of the department of physiology, and will assume this position with the opening of the session of 1913-1914.

Medicine and Surgery Exhibit at the Panama-Pacific International Exposition.—At this exposition at San Francisco in 1915 there will be displayed in a comprehensive manner the achievements and activities of mankind during the last decade. In the domain of liberal arts the exhibits will be particularly interesting and significant, and the wonderful developments in medicine and surgery make certain a display of the highest importance. The mechanical side of surgery will be represented by a complete collection of instruments and appliances used in this field of medicine, and there will be shown the most intelligent modern methods employed in the prevention and mitigation of human ills. The ground plan for the Palace of Liberal Arts is already arranged, and on account of the limitations of space, the exhibits must be selective in character. Mr. Theodore Hardee has been appointed chief of the Liberal Arts Department of the Exposition.

Memorials to Lord Lister.—Dr. W. W. Keen, of Philadelphia, has made known to the general public, in a letter to the *Philadelphia Public Ledger*, the plans which are being made to honor the great pioneer in antiseptic surgery. He writes: "There is an active movement on foot in Great Britain to establish several different kinds of memorials to the memory of Lord Lister. One is to preserve his ward in the Glasgow Royal Infirmary, in which he did his earliest work in developing antiseptic surgery, just as it stood in his day. This infirmary is now rebuilding, but they propose to keep this ward as a relic and install there a museum for everything connected with his work. In addition to this there will be a Lister International Memorial Fund to support fellowships and studentships in surgical research, a monument in London and a memorial tablet in Westminster Abbey." The letter goes on to say that while American surgeons are subscribing liberally to the fund, and it is expected that the American Surgical Association will do the same at its meeting in May, Doctor Keen believes that Lord Lister's work in greatly diminishing the mortality from surgical operations and rendering recovery more prompt and painless, appeals even more to the general community than to surgeons. Contributions can be made direct to John S. Samuel, Esq., honorary treasurer of the memorial fund, City Chambers, Glasgow, or to Doctor Keen, whose address is 1729 Chestnut Street, Philadelphia. In sending contributions it should be stated to which of these several memorials the donors wish to contribute.

Governor Sulzer's Commission Continues Its Investigations.—On February 19th Governor Sulzer sent to the Legislature a message recommending certain changes in the sanitary system of New York, which were suggested to him by the special commission he appointed to investigate health conditions in the State. Among the recommendations suggested by the commission are the following: The abolition of town and village health boards and the substitution of a State system of district sanitary supervision; the extension of the term of office of the State Commissioner of Health to six years and the increasing of his salary from \$5,000 to \$10,000 a year, with the understanding that he must not engage in any outside occupation; the creation of a Public Health Council of seven members, with power to adopt public health regulations; the division of the State, outside of New York city, into twenty sanitary districts, with an expert sanitary supervisor in each devoting his full time to sanitary work; the addition of a Bureau of Child Hygiene and a Bureau of Public Health Nursing to the State Department of Health; the establishment of tuberculosis hospitals in all counties; the establishment of contagious disease hospitals by local authorities, to be inspected by the State Department of Health; the extension of educational work in public health matters by the State Department, and the encouragement of courses in sanitary science in educational institutions. Governor Sulzer has asked the commission to continue its work, the subjects to be investigated to include the following: Establishment in medical colleges of courses in sanitary science; medical examination, at least of male applicants, as a condition to obtaining a marriage license; establishment in connection with tuberculosis hospitals of industrial plants for the employment of patients with arrested cases; regulation of housing in cities of the second and third classes; better protection of water supplies. Dr. Hermann M. Biggs, of New York, heads the commission.

March Calendar of Clinics of the Department of Public Charities.—

Calendar, March, 1913.

- MONDAYS.**
 City Hospital—Surgery, Dr. Dawbarn, 2:30 p. m.
 Dermatology, Dr. Fordyce, 3:00 p. m.
 Cumberland Street Hospital (Brooklyn)—Surgery, Dr. Walmsey, 3:00 p. m.
 Laryngology and rhinology, Dr. Stewart, 4:00 p. m.
 Oral surgery, Dr. B. Shea, 4:30 p. m.
- TUESDAYS.**
 City Hospital—Ophthalmology, Dr. Gilfillan, 2:00 p. m.
 Neurological Hospital—Neurology, Dr. Byrnes, 9:00 a. m.
 New York City Children's Hospitals, Randall's Island—Orthopedics, Dr. Ogilvy, 10:00 a. m.
 Cumberland Street Hospital (Brooklyn)—Ophthalmology and otology, Dr. Lloyd, 3:00 p. m.
 Surgery, Dr. Iler, 3:00 p. m.
 Kings County Hospital (Brooklyn)—Obstetrics, Dr. Commiskey, 10:00 a. m.
 Genitourinary surgery, Dr. Morton and Dr. Fraser, 2:00 p. m.
 Surgery, Dr. Bristow, 2:00 p. m.
 Coney Island Hospital—Surgery, Dr. Fiske and Dr. Bogart, 10:30 a. m.
 Surgery, Dr. Murphy and Dr. Lack, 10:30 a. m.
 Medicine, Dr. Hall and Dr. Nash, 3:30 p. m.
 Medicine, Dr. Hegeman and Dr. Byington, 3:30 p. m.
- WEDNESDAYS.**
 City Hospital—Surgery, Dr. Dawbarn, 9:00 a. m.
 Medicine, Dr. Quimby, 1:30 p. m.
 Genitourinary surgery, Dr. Greene, 2:00 p. m.
 Obstetrics, Dr. Dorman, 2:30 p. m.
 Metropolitan Hospital—Surgery, Dr. Bogg and Dr. Honan, 2:30 p. m.
 March 5th, medicine, Dr. Hathaway, 2:30 p. m.
 March 12th and 26th, medicine, Dr. Moore, 2:30 p. m.
 March 19th, medicine, Dr. Swift, 2:30 p. m.
 March 26th, medicine, Dr. Seward, 2:30 p. m.
 March 5th and 19th, neurology, Dr. Howard, 2:30 p. m.
 March 5th and 19th, ophthalmology and otology, Dr. Boyle, 2:30 p. m.
 March 5th and 19th, electrotherapeutics, Dr. Royle, 2:30 p. m.
 March 12th, obstetrics, Dr. Storer, 2:30 p. m.
 March 12th and 26th, genitourinary surgery, Dr. Carleton, 2:30 p. m.
 March 12th and 26th, laryngology and rhinology, Dr. Foster, 2:30 p. m.
 Neurological Hospital—Neurology, Dr. Maloney, 10:00 a. m.
 Cumberland Street Hospital (Brooklyn)—Gynecology, Dr. Pierson, 2:30 p. m.
 Kings County Hospital (Brooklyn)—Dermatology, Dr. Winfield, 1:00 p. m.
 Orthopedics, Dr. Truslow, 9:00 a. m.
 Orthopedics, Dr. Napier, 2:00 p. m.
 Coney Island Hospital—Pediatrics, Dr. Beck and Dr. McQuillan, 3:30 p. m.
 Pediatrics, Dr. Pendleton and Dr. Van Wart, 3:30 p. m.
- THURSDAYS.**
 City Hospital—Medicine, Dr. Evans, 9:00 a. m.
 Medicine, Dr. Brooks, 2:30 p. m.
 Gynecology, Dr. Stearns, 2:00 p. m.
 Cumberland Street Hospital (Brooklyn)—Surgery, Dr. Walmsey, 3:00 p. m.
 Laryngology and rhinology, Dr. Stewart, 4:00 p. m.
 Kings County Hospital (Brooklyn)—Obstetrics, Dr. Commiskey and Dr. Judd, 10:00 a. m.
 Otology, Dr. Alderton, 1:00 p. m.
 Gynecology, Dr. McNamara, 1:30 p. m.
 Surgery, Dr. Bristow, 2:00 p. m.
 Coney Island Hospital—Gynecology, Dr. McEvitt and Dr. Mills, 10:30 a. m.
 Gynecology, Dr. Mayne and Dr. Rankin, 10:30 a. m.
 Surgery, Dr. Fisk and Dr. Bogart, 3:00 p. m.
 Surgery, Dr. Murphy and Dr. Lack, 3:00 p. m.
- FRIDAYS.**
 City Hospital—Laryngology and rhinology, Dr. Dougherty, 2:30 p. m.
 Neurological Hospital—Neurology, Dr. Abrahamson, 9:00 a. m.
 Cumberland Street Hospital (Brooklyn)—Ophthalmology and otology, Dr. Lloyd, 3:00 p. m.
 Surgery, Dr. Iler, 3:00 p. m.
 Oral surgery, Dr. Shea, 4:30 p. m.
- SATURDAYS.**
 City Hospital—Pathology, Dr. Larkin, 2:00 p. m.
 Neurological Hospital—Neurology, Dr. Walsh, 2:00 p. m.
 Kings County Hospital—Obstetrics, Dr. Commiskey, 10:00 a. m.
 Surgery, Dr. Bristow, 2:00 p. m.
 Pediatrics, Dr. Little, 3:00 p. m.
 Medicine, Dr. Stivers, 3:30 p. m.

All registered physicians, visiting and resident, and medical students are cordially invited to attend these clinics. Cards of admission, valid until October 1, 1913, may be obtained at the Academy of Medicine, 17 West 43rd Street, Manhattan, and at the Medical Society of the County of Kings, 1313 Bedford Avenue, Brooklyn, as well as from the secretaries of the several medical colleges.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

December 2, 1912.

Electrical Irritability of Muscle in Diseases of Various Organs.—R. Báluit and E. Egan, the former in 1903 showed that when the apex of the lung is diseased the galvanic and faradic irritability of the shoulder muscles on the same side is increased, and this fact has given rise to further experiments along this line, namely, whether a similar change of the muscle irritability is also to be found in diseases of other organs, corresponding to the distribution of Head's zones. These expected changes have been realized. One sided kidney lesions, tuberculosis, stones, are accompanied by increased irritability of the lumbar muscles. In cholelithiasis the abdominal muscles lying over the gallbladder region show greater electrical reaction than the same muscles of the corresponding side. The right shoulder muscles in most of the cases show stronger contractions than the same muscles of the other side. This accords with the usual radiation of the pains to the right shoulder. In gastric ulcer the electrical hypertonus is confined to the musculature of the upper left abdominal wall while no change in the reaction of the shoulder muscles is seen.

Action of Serum on Watery Organic Extractive Poisons.—H. Dold says the acute fatal action of the intravenous injection of watery organic extractives is checked and counteracted by the action of fresh serum. The extract and serum must be in a certain proportion and have acted upon each other for a certain period of time so that the poison is neutralized. The neutralization of the organic extractives by fresh serum is probably explained by the fact that the fibrinogen remaining in the serum unites with the fibrin ferment of the watery organic extractive and thus makes it negative.

Röntgen Therapy in Gynecology.—M. Cohen found that the treatment of hemorrhage from the pelvic organs when it is not conditioned by malignancy is satisfactorily treated by Röntgen rays. In some of the cases the results have been permanent. The effect of the rays is due to their action on the ovaries and the phenomena are never as severe in the long run as after operative castration. The experiments of the author show that the hemorrhages of the climacteric due to sclerosis of the pelvic organs are more favorably influenced than the hemorrhages from myomata. A direct influence of the rays upon the myomata has not been proved. The constant decrease in size of these myomata is probably due to a secondary process conditioned by the specific action on the ovaries.

Pituiglandol in Eclampsia.—Krakauer describes a case of a primipara twenty years old, in whom eclampsia developed in the seventh month. Since no labor pains were elicited twelve hours after induced labor one c. c. of pituiglandol was injected. Two hours later spontaneous birth took place. The patient was at this time unconscious and deeply under the influence of chloroform. Recovery took place.

December 9, 1912.

Effect of Hormones on Opsonic Index.—A. Strubell says: 1. Iodine and bromide cause acne

and decrease the opsonic index long before the acne appears. 2. Arsenic is instrumental in allaying the acne and increases the opsonic index. The iodine in thyreoidine decreases the opsonic index while pancreon increases it.

Technic of Wound Suturing.—H. Oppenheim gives a technical description of a continuous intracutaneous catgut suture and Michel's clamp, the advantages of which are the attainment of a tight aseptic skin suture and the formation of a faultless, rapidly healing cosmetic scar.

Cerebellar Tumor Successfully Operated on.—H. Oppenheim reports a case which, beside the rarity of a successful result, has two other interesting features: 1. Symptomatic; in the left lateral position there was a distinct nystagmus to the right and further a double sided hyporeflex of the cornea not present when the patient assumed another position. This combination of nystagmus with weakening of the corneal reflex, points, according to this author's experience, with great certainty to a lesion near the vermis of the cerebellum, in this case in the right hemisphere. 2. Operative prognosis; to remove the tensely stretched and infiltrated tumor the larger part of the vermis and neighboring portions of the cerebellar hemispheres had to be excised. This defect had not the slightest influence upon the functions of the cerebellum.

Peritonitis Due to Bile without Perforation of the Gall Passages.—F. Wolff says that up to the present time cases of bilious peritonitis can be divided into two groups: 1. Those in which a moderate amount of slimy, green gall is found in the abdomen, and, 2, those in which the exudate is only colored by the bile. In the latter class of cases there is diffusion of bile from an uninjured gallbladder. The processes which lead to this increased permeability of the gallbladder wall are not yet understood which accords with the scarcity of this occurrence. The moderate escape of bile into the abdominal cavity is almost always due to a perforation of the stomach, duodenum, or gall passages.

December 16, 1912.

General Congenital Hydrops.—W. Fischer reports two cases. The etiology of this condition is still unsolved notwithstanding the observations that have been made. In these two cases lues could be ruled out positively.

Esophageal Stenosis.—A. Réthi's case of esophageal stenosis, following diphtheria, proves that esophagoscopy is valuable not only for diagnostic purposes but also as therapeutic aid.

Autovaccination of the Tongue.—W. Lublinski relates the case of a child who touched the seat of vaccination with his finger and carried the lymph thereon to the tongue, causing autovaccination. The rhagades which were present in this case made this process easy.

New Leg Phenomenon.—A. Piotrowski says that the tibialis anticus reflex produced by tapping the origin of the anterior tibial muscle or by percussing the belly of the muscle which causes an excessive supination of the foot in organic diseases is seldom found in a healthy individual. It is thus distinguished from the knee phenomenon which is usually present. Its diagnostic value lies in the fact that in organic lesions of the central nervous system,

because of its marked abnormal tendency, variable presence, symmetrical occurrence, and excessive intensity, it has a pathognomonic significance.

December 30, 1912.

Experimental Chemotherapy of Bacterial Infection.—R. Levy's experiments on animals have shown that a fully developed infection with the streptococcus mucosus can be checked by ethylhydrocuprein and the animals cured permanently, while the untreated control animals died without exception in the manner typical of a bacteriemia. These results can be attained even though there be a decided bacteriemia present prior to treatment.

ZENTRALBLATT FÜR CHIRURGIE.

February 1, 1913.

Operation for Ptosis with Transplantation of Fascia.—Aizuer reports a case operated in by connecting the tarsus of the upper lid with the frontal portion of the occipitofrontalis by means of a strip taken from the fascia lata of the thigh. The frontal muscle is laid bare by an incision above the brow, the tarsus by an incision through the skin of the lid, the skin between the two incisions is elevated, a piece of the fascia lata, two cm. broad and ten cm. long, is introduced through the tunnel thus formed, one end is sutured to the tarsus, and the other to the frontal muscle, sufficient tension being made to lift the upper lid slightly. The result was excellent in the case reported.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

January 4, 1913.

Care of the Wound in Radical Operation for Cancer of the Uterine Neck.—E. Bumm holds that the favorable course of abdominal operations depends upon the care taken in order to have an undamaged peritoneal surface preserved. At first the wounds in the pelvic tissues were tamponed with gauze. In nearly a third of his cases supuration followed by necrosis of the overlying peritoneum. The mortality was 29.7 per cent. When the tampons and drainage were omitted the mortality in 100 radical operations was reduced to six per cent. Of these patients, two died from cardiac insufficiency, the other four from peritonitis. Bumm believes that this is due to the protection of the peritoneum. He holds that when a gauze tampon is introduced it interferes with the circulation of the parts, and that it soon becomes saturated with secretion. This undergoes chemical changes and is soon infected by the bacteria that are always present.

Acute Tuberculosis Following Gynecological Operations.—L. Prochownick reports seven cases in which death from acute miliary tuberculosis followed gynecological operations. He comes to the conclusion that one must be most guarded in the prognosis whenever tuberculosis of the genital tract is present.

January 11, 1913.

Relationship between the Formation of the Corpus luteum and Menstruation.—R. Meyer and C. Ruge made microscopical examinations of ovarian tissues and concluded that there was a definite relationship between ovulation and menstruation, also that the histological appearance of the corpus luteum indicated the time of the last menses.

Uncontrollable Vomiting due to a Puerperal Retroversion of the Uterus.—Max Sperling reports a case of a woman of twenty-three years who began to vomit severely at the end of the third month of pregnancy. This increased in gravity, and about the fifth month a spontaneous abortion occurred. The patient recovered without complications and the vomiting decreased, but did not stop completely. Three or four months after the miscarriage the vomiting increased suddenly and became uncontrollable. Examination showed hyperinvolution and retroversion of the uterus. The organ was curetted, but no portions of fetal tissue were removed. After this operation the vomiting ceased. According to Sperling this case indicates that the vomiting of pregnancy is not a manifestation of maternal intoxication by fetal material. He concludes that here it was more probably due to involvement of the sympathetic plexus setting up reflex disturbances.

January 18, 1913.

Hyperemesis gravidarum.—Max Stolz believes that this condition may be due largely to the irritation of the nervous system. He reports two cases in which the vomiting was eventually controlled by the continued administration of opium, enemas being used to keep the bowels open. In neither case did it become necessary to produce abortion, although such an outcome was feared.

Climacteric Hemorrhage and Cancer Prophylaxis.—Franz Lehmann calls attention to the importance of extensive and early operation in cancer of the uterus. The first has been developed to its utmost at present, so education along the second line is necessary. To that end he states that the term "climacteric hemorrhage" should not be employed, as there is no such thing. When bleeding occurs at that period there should be a curettage followed by a microscopical examination for possible malignancy.

January 25, 1913.

Herpes zoster Following Delivery.—Hans Kunz reports a case of extensive herpes pectoralis in an eighteen year old girl, about four days after delivery. On the third day after its appearance there was a chill followed by a rise in temperature. That herpes appears after the use of various drugs and in the course of certain infections is well known. In this particular instance uterine contractions had been stimulated by the use of pituitary extract.

Development of the Fetus in the Ninth Month.—Rolf Lutz believes that the growth of the fetus, as far as length and weight are concerned, practically ceases in the ninth month. During the tenth month the internal organs show increased development.

KLINISCHE MONATSBLÄTTER FÜR AUGENHEILKUNDE.

December, 1912.

Vision of the One Eyed.—W. P. C. Zeeman calls attention to the great amount that has been written during the past ten years on this subject and the efforts that have been made to determine the loss of earning power caused by the loss of one eye. These studies have resulted in showing that the brightness of the images is not always the same, whether the object is regarded with one eye or with

two, that the distinctness of the image is not the same, that fixation of one eye alone is not as accurate, that the loss of a portion of the field of vision is of great importance in certain callings, and that the power to estimate depth, the faculty of stereoscopic vision, is the most serious deprivation suffered by the victim. Hence careful study has been made of the monocular perception of depth. Passing by the details of the investigation, Zeeman concludes that the intellect plays as great a part in adaptation to the work as habit; that uniformity of the work greatly favors a rapid adaptation, while a change of occupation is very unfavorable; that no method of measurement of the monocular perception of depth can determine the working capacity of a one eyed patient; and that there is always a considerable difference between the apparently perfect adaptation of the one eyed and that of the two eyed workman, because the gross estimate of depth which can be made by the latter in $1/200$ of a second cannot be made by the former in less than half a second. Hence it is probable that the one eyed workman, although he may do as good and as much work as the two eyed, will tire sooner, as he must concentrate for a half second to do that which the other can do easily in $1/200$ of a second. This may account in part for the vague asthenopic symptoms of which one eyed persons are apt to complain, but at the same time the absence of such symptoms in many of such persons shows that this increased strain does not exceed the bearing capacity of the normal man.

LYON MÉDICAL

January 19, 1913.

Ambard's Ureosecretory Coefficient and Its Clinical Applications in Urinary Surgery.—Gayet and Boulud report researches in cases of prostatic hypertrophy and cancer, renal tuberculosis, nephrolithiasis, and pyelonephritis, concerning Ambard's coefficient of renal efficiency, which is derived from measurements of the concentration of urea in the blood and in the urine. They find the coefficient a far more reliable expression of renal efficiency than the results obtained by injecting methylene blue. Ambard's procedure supplies extremely useful information from the standpoint of exact diagnosis of renal lesions, prognosis, and indications for medical or surgical treatment.

PRESSE MÉDICALE.

January 25, 1913.

Cardiac Chorea.—C. Aubertin and M. Parvu assert that choreic involvement of the heart, though its occurrence is denied by a number of authors, is actually met with occasionally, but only in severe cases of chorea. It is manifested in an arrhythmia, not necessarily accompanied by endocarditis nor by functional murmurs. In a case reported by the authors, that of a little girl of nine years, free of rheumatic antecedents, but suffering from chorea so severe as to result in general bruising of the body, the pulse was neither feeble nor frequent—eighty a minute—but showed a highly irregular arrhythmia, with from twenty to twenty-five intermissions each minute. Fatigue and exertion had no influence. The most striking feature was that

the heart sounds were apparently even louder than normal. There was no murmur or thrill, the heart was not dilated, the blood pressure was normal, and there was no subjective discomfort in the cardiac region. Arsenical treatment caused prompt improvement in the general choreic movements and the accompanying respiratory irregularity and difficulty of speech, but the cardiac arrhythmia, although reduced at first, then remained about the same for six months, later gradually subsiding. Cardiographic and electrocardiographic observations, made six months after the onset of chorea, showed supranodal auriculoventricular extrasystoles, isolated auricular beats, and atypical undulations in the electrocardiogram. In spite of the marked arrhythmia, there was no trace of auricular paralysis.

REVUE DE MÉDECINE

January, 1913.

Thyroid Treatment and Epilepsy.—E. Gelma lays stress on the relationship existing between disturbances of the thyroid and parathyroid secretions and certain cases of epilepsy. The results obtained with thyroid treatment and the pathological changes in the thyroid not infrequently discovered tend to justify the separation from the "idiopathic" cases of the disease a group which may be designated as "thyroid epilepsy." In two of the author's cases in which bromides had proved useless, the administration of thyroïdine brought about cessation of the seizures, an improved general condition, and an awakening of the mental and moral faculties, previously considerably obtunded. He considers thyroid treatment indicated, first of all, in epileptics with goitre or myxedema,—although even in these it will not always prove effective where abnormal thyroid functioning is not the sole cause, but is combined with various forms of intoxication or with disturbances of other ductless glands. Thyroid preparations should also be given in cases presenting merely some of the minor signs of hypothyroidism, such as edema, tendency to obstruction of the nasal passages, periods of aphonia, loss of lateral portions of the eyebrows, baldness, disturbances of temperature conditions or of the digestive functions, headache, somnolence, etc. Where thyroid preparations do good, bromides should be omitted, as they frequently produce toxic phenomena and mental disorder in these patients. Infantile convulsions in those with suspected myxedema or abnormal thyroid functioning may also derive benefit from thyroid.

Treatment of Headache in Acute Infections by Lumbar Puncture.—H. Roger and J. Baumel practised lumbar puncture systematically in cases of typhoid fever, Malta fever, influenza, pneumonia, and acute tuberculosis that suffered from headache, the result being prompt and almost always complete and permanent relief after a single puncture. They attribute the benefit both to removal of cerebrospinal hypertension and to the evacuation of toxic substances which had previously been causing local irritation. Where there is a marked increase of pressure, twenty to thirty c. c. fluid, or even more, may be removed; in ordinary cases, ten c. c. is amply sufficient. No untoward results were ever witnessed.

ROUSSKY VRATCH

November 24, 1912.

Serum Anaphylaxis.—A. A. Urgelunas concludes from a series of experiments that in cases in which a repetition of antitoxine is necessary twelve to fifteen days after the first injection, antitoxic serum obtained from other animals, such as cows and asses, should be employed. The serum from such animals should also be used for prophylactic treatment.

Method of Ligation and Care of the Umbilical Cord.—K. B. Gochstein asserts superiority for the following method employed at the Moscow Lying-in Hospital. The cord is ligated as usual. After the bath the ligature is tightened and the end of the cord covered with plaster of Paris. This is covered with a layer of cotton and the whole supported by a fold of the infant's shirt.

December 22, 1912.

New Investigations on Chemotherapy of Infectious Diseases.—L. Gutman determined experimentally that ethylhydrocuprein, a derivative of quinine, is antagonistic to pneumococci whether present in the lungs or in the blood. The objection to this drug is that it may cause amblyopia even in small doses. The amblyopia, however, is temporary, disappearing upon the withdrawal of the drug. The effect on bacteriemia in man has not been investigated, but the results obtained on animals are very promising.

A Second Case of Incised Wound of the Heart Suture Recovery.—N. N. Boljarsky reports his second case of suture of a wound of the heart followed by recovery. The first case was reported in 1910.

December 29, 1912.

The Etiology and Treatment of Priapism.—I. Ph. Milenushxin discusses this affection and reports a case of priapism in a man, thirty-seven years old, without any evident cause. The affection lasted about two months and finally yielded to treatment with morphine, baths, x rays, and arsenic.

The Natural Division of Childhood into Periods Corresponding to Four Coefficients of Height and Weight.—M. E. Grusden collated a large amount of material from different sources which forms the basis for his theory that up to puberty the weight follows strictly the height. Dividing the periods according to height, he finds that beginning with 47.5 to 72.5 cm., there is an addition of 0.003 kilogrammes to each cm. From 72.5 to 107.5 cm. 0.001 kilogramme is added for each cm. From 107.5 to 142.5, 0.002 kilogramme is added. From 142.5 to the maximum height 0.004 kilogramme is added for each cm. The first period corresponds to the first 1.5 year of life; the second to from 1.5 to 5.5 years; the third to from 5.5 to 12.5; and the fourth from 12.5 years to puberty.

BRITISH MEDICAL JOURNAL.

February 8, 1913.

Vaccines and Fever.—E. C. Hort seeks to prove that the commonly accepted view that fever is due to the liberation of a toxine from infecting or injected dead cultures of bacteria is incorrect and based upon fallacious observations. He shows that pathogenic bacteria can be divided into two groups

with regard to their powers of producing fever when dead cultures are injected. The pyrogenetic vaccines are those from *Bacilli typhosus*, *coli*, *influenza*, *pestis*, *melitensis*, *micrococcus catarrhalis*, *Vibrio cholera*, *acne bacillus*, and certain strains of staphylococci. The apyrogenic are *Bacilli diphtheria*, *anthracis*, *tuberculosis mallei*, *streptococcus*, certain strains of staphylococcus aureus, and the pneumococcus. By most carefully conducted experiments Hort shows that the pyrogen, as he terms the fever producing substance, contained in vaccines from the first group is not inherent in the bacteria, but is a product of their growth on the artificial culture media; that it can in part be washed from the bacteria by which it has been absorbed; that it can be demonstrated in bacteriafree water in which these cultures have been washed; and that it is present neither in the fresh culture media nor in bacteria which have been obtained without previous growth on artificial media. The second group of bacteria do not generate or liberate any pyrogen from the ordinary culture media, though they cause fever in the infected animal. Some of these can be endowed with pyrogen producing properties by animal passage. Further, growth of air borne staphylococci in the natural media of the animal body, such as blood, brings out the fact that these bacteria cause the liberation of pyrogen from such media and that probably this is the mechanism of their production of fever in the infected animal. The pyrogen elaborated clinically in the host is indistinguishable from that produced by certain bacteria in their growth on artificial culture media. In view of experimental observations along these lines it is difficult to resist the conclusion that a rising temperature is not—as we have been paradoxically led to believe—a sign of increase of bactericidal and bacteriolytic function, but is, on the contrary, an expression of activity of living organisms. Dead organisms do not, in natural infections, give rise to fever. In the light of these findings it has become necessary to reinvestigate the very existence of bacterial endotoxines. They also necessitate the adoption of new lines in the study of immunity, the meaning of sensitization, the question of the superiority of living vaccines over dead, and the reexamination of the whole scheme of vaccine therapy.

Simple and Rapid Method for the Administration of Subcutaneous Salines.—E. M. Woodman uses a large silver cannula from a Southey's tube apparatus, which he connects with a large glass funnel by means of a tapered glass tube and a section of Southey's rubber tubing. This is all readily portable and readily sterilized by boiling. In the administration of the saline the anterior axillary fold is grasped firmly and drawn outward. The trocar with cannula is then passed into the skin in a direction perpendicular to the chest and pushed through the axillary fold so that its point emerges within the axilla. The trocar is then removed and the cannula is pushed outward until its shoulder is flush with the skin. The fluid emerging from this cannula squirts in all directions and passes into three distinct planes separated into watertight compartments by the deep fascial layers. The most superficial lies in the fatty tissue over the pectoral muscle and around the breast, beneath this the saline passes into the

pectoral muscles, whence it is rapidly absorbed, and lastly it collects in the axilla. Fluid is absorbed so rapidly when introduced in this way that it is possible to inject a quart into the tissues in twenty minutes without there being any material swelling.

Adrenalin in the Emergency Treatment of Noncorrosive Poisoning by the Mouth.—J. L. Jona finds that the immediate administration of a quantity of adrenalin in the dilution of one to 10,000 will cause immediate and very marked constriction of the vessels of the mucosa of the stomach and even, in some instances, of the upper part of the duodenum. This vasoconstriction is such as materially to lessen the rate of absorption of many poisons and therefore to leave time for the institution of measures of elimination or neutralization. His conclusions are based upon experiments with rabbits, using potassium cyanide, strychnine, and aconite. He found that it required three c. c. of the one to 10,000 solution of adrenalin to produce sufficient vasoconstriction in the stomach of the rabbit, and, basing his calculations on the relative areas of the rabbit's stomach and that of man, he suggests the use of ninety c. c. or three ounces of a similar dilution for man.

LANCET.

February 8, 1913.

Etiology of Endemic Goitre (Lectures III and IV).—Robert McCarrison states that the blood changes found in endemic goitre suggest that perhaps the seat of the infection is to be found in the intestinal tract, since similar blood changes are met with in other intestinal infections. There is no indication of any blood infection so far discovered. The pathogenesis of the goitre consists probably in a primary stimulation of the gland by the goitrous influences, and the increased activity thus induced is early followed by damage to the secretory epithelium, and by degenerative changes which impair its functional activity. Up to the present time there is no evidence of the existence in the gland of any living excitant to which the disease can be attributed. The administration of the iodides, thymol, and lactic acid bacillary cultures internally and the injection of vaccines prepared from the organisms in the patient's own feces or of staphylococcus vaccine, all serve to check the advance of endemic goitre. On the strength of this observation McCarrison suggests that the gland is called upon in endemic goitre to overwork in the production of antibacterial and antitoxic substances for the destruction of bacteria and their toxins, the source of which is probably the intestinal tract. He has confirmed this view by producing goitre in a large percentage of goats which drank water contaminated with the feces of human patients with goitre. He concludes with the opinion that the essential cause of endemic goitre is a microorganism living in the intestines of man and there producing a toxine which so influences the thyroid gland that it undergoes the characteristic enlargement.

A Series of Seventy-eight Cases of Streptothrix Infection.—Alexander G. R. Foulerton collates this series with three other reported series and finds that the essential facts are much the same in each, although his series is more completely analyzed than

are the others. About sixty-five per cent. of the infections are in males and sixty per cent. in individuals between the ages of fifteen and thirty-five years. Occupation has a marked influence, the disease being most frequent among those whose work brings them into contact with vegetable products or with cattle or horses. Seven of the cases were in tailors or dressmakers, and the suggestion is that the infection arose from the habit of drawing the cotton thread through the mouth. Over fifty per cent. of all infections are of parts about the mouth or neck, and twenty-five per cent. more lie in the appendix or other part of the gastrointestinal tract. Treatment is very successful if undertaken early and while the infection is yet local. It consists mainly in thorough surgical removal of the infected tissue. In at least one instance the use of a vaccine prepared from the organism was successful in a case of pulmonary infection. Diagnosis is comparatively easy in many of the superficial infections by the culture of the organism, its presence in scrapings, and the fact that the lesions spread within the subcutaneous tissues with little or no involvement of the underlying structures or the overlying skin. In deep infections of internal organs diagnosis may be extremely difficult or even impossible. Isolation of the streptothrix is the only conclusive evidence.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

January, 1913.

The Standardization of Disinfectants.—J. T. Ainslie Walker says that the standardization of disinfectants may be said to be an attempt to protect the consumer from the fraudulent manufacturer, for any preparation, however useless, may be sold legally, even when bearing a false guarantee. He describes the Rideal-Walker method of expressing the germicidal efficiency of disinfectants, devised by himself and Doctor Rideal, as submitting any postulant disinfectant to direct measurement of its bactericidal strength in parallel with a dilute standard phenol solution, assigning to it a "figure of merit" based on this direct comparison. The test consists in applying the postulant and the standard disinfectants in various dilutions to equal portions of the same culture for determinate periods of exposure in identical conditions, and observing the result by subculture. The dilutions of the disinfectants which kill in the same time stand to each other in a ratio which gives numerical expression to the actual disinfectant in terms immediately comparable with any similar figures which may be obtained for the next disinfectant that is examined. He states that this method has been adopted by all government departments and public health authorities in England, but in this country by Maryland alone, and urges its general adoption.

Results of Treatment of Syphilis as Shown by the Wassermann Reaction.—George S. Strathy and Gordon Bates conclude that the Wassermann reaction is the most reliable method for the diagnosis of a cure of syphilis, but is of little value within six months of treatment, and should be repeated six months or a year later. When symptoms persist and the Wassermann reaction is negative, the reaction should be disregarded. A negative history of infection is of no value in making a diag-

nosis. In cases of congenital syphilis the mother is probably always diseased and should be treated. A history of freedom from symptoms for over ten years is not sufficient evidence that a patient is cured. A person with a history of syphilis is never a good insurance risk, especially for a straight life policy. When mercurial treatment is adopted it should be persisted in for at least three years after the symptoms have disappeared. Potassium iodide does not cure syphilis and is never sufficient treatment for a lesion, whether secondary or tertiary.

INDIAN MEDICAL GAZETTE.

January, 1913.

Recent Research on Cholera in India.—E. D. W. Greig finds that the cholera vibrio is not limited to the alimentary tract, as has been supposed, but that it may enter the gallbladder, where it finds ideal conditions for a prolonged life. He examined bacteriologically the bile in 271 fatal cases of cholera and cultivated the cholera vibrio from it in eighty. In twelve of these, distinct pathological changes, both macroscopic and microscopic, were found in the gallbladder. Examination of a number of patients just before they left the cholera hospital revealed that about thirty-six per cent. of them were excreting the cholera organism in their stools and were therefore "carriers." As this organism has a hard struggle for existence in the intestine, it is probable that it was present in the bile and that many will continue to be carriers for a long time. In two cases it was found in the stools thirty days and forty-four days after the acute attack. In addition, he found that many persons who are immune harbor the organism. Examination of twenty-seven persons who had been in close contact with cholera cases showed that six were excreting the cholera vibrio in their stools and were apparently quite healthy at the time. Both these "contacts" and the convalescents are important agents in transporting cholera. Bacteriological examinations of flies caught in the neighborhood of collections of cholera cases showed that the cholera vibrio was present on their external appendages and also in their alimentary tracts, thus proving the fly to be a carrier of the disease. Thus he finds that the main channels by which the infection of cholera is transmitted are by healthy "carriers" and flies.

Pyorrhœa alveolaris in Sylhet Jail.—L. Bodley Scott has studied for a year the gums of all prisoners admitted to the Sylhet jail, and presents a paper quite worthy of study. He thinks the disease seen in Bengal to be the same as that described by European writers. It is very common in that country and few natives escape it. Many have the disease in youth, many not till advanced life, but the liability steadily increases with age. There are marked fluctuations of prevalence, apparently due to the effects of seasonal influences on the general health. There is a decided correlation between unhealthy gums and a state of poor general health, of which there is some evidence to show that pyorrhœa is more often the result than the cause. No definite evidence was found of any closer relation than this between pyorrhœa and any particular disease, except that scurvy may aggravate the condition. There is evidence to show that dysentery acts as a cause of pyorrhœa, but not vice versa.

Nothing was found to support the theories which have attributed to oral sepsis such diseases as rheumatoid arthritis, appendicitis, gastric and duodenal ulcer, but it is possible that less distinctive complaints, such as chronic dyspepsia, constipation, digestive troubles, and chronic rheumatism may have some connection with oral sepsis. Pyorrhœa is incurable once the earliest stages are past, but the troublesome symptoms are amenable to treatment to some extent.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 13, 1913.

Persistent Mouth Breathing Following Adenoidectomies.—Irving Sobotky emphasizes the fact that nasal breathing exercises have not proved efficient for the cure of persistent mouth breathing after adenoids have been removed, and that operative treatment appropriate for the age of the patient is indicated for the nasal condition. Adenoids should be removed before the typical high palatal arch is formed, but if the high arch is formed the treatment should be dental, spreading the arch and regulating the teeth. Cutting a slice of mucous membrane from the enlarged lower turbinates has given good results as an aid to nasal respiration. A submucous resection should not be done in children under sixteen years of age. Electrolysis, using the bipolar method, is effective in reducing the enlarged turbinates, but is not suited for children.

Progress in Surgery of the Bloodvessels.—J. C. Hubbard reviews much of the work that has been done along this line of late and concludes: 1. There is experimental evidence to show that in animals the circulation through the large veins of the extremities may be reversed, and it is possible for the normal blood pressure in the arteries to overcome the resistance of the valves of the veins. 2. Experimental and clinical evidence show that anastomotic opening is not permanent, but that gradual obliteration by intimal overgrowth takes place in event of the failure of early occlusion by thrombus. 3. There is not sufficient clinical evidence to show that the pressure of the blood in the arteries is sufficient to force the valves of the veins. 4. Early occlusion of the vessels about the anastomotic opening by a thrombus is the rule, and in many of the cases reported the opening never at any time functioned. 5. In event of the arterial blood forcing the valves near the anastomotic opening, it returns chiefly through the larger communicating veins and does not usually traverse the capillaries. 6. With a normal arterial pressure it required weeks or months for the valves in the communicating vein to be overcome, and the arterial blood supply was maintained partly through the usual collateral channels. In cases of gangrene from obliterating diseases of the arteries the collateral vessels are already occluded and immediate reversion of the circulation is imperative, but cannot be accomplished at present because of the obstruction afforded by the valves, the resistance offered by a thrombosed vein, and because the blood returns through the nearest communicating vein and does not reach the peripheral capillaries. 7. The only indication for the application of arterio-venous anastomosis in surgery is in traumatic destruction of a principal artery where an end to end

union of the torn vessel is impossible. In such a case arteriovenous anastomosis might be attempted, and through it we might maintain a sufficient blood supply to preserve the integrity of the limb until an adequate collateral circulation was established.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
February 15, 1913.

Benzol in the Treatment of Leuchemia.—Frank Billings, following out the suggestions of Von Koranyi, used benzol (benzene, not benzin) as a drug in the treatment of five cases of leuchemia. The benzol was usually exhibited in gelatin capsules filled at the time of administration (soon after meals and at bedtime). The initial dose was seven minims, soon increased to fifteen minims. Burning in the stomach was a common symptom, and all complained of eructation of gas tasting and smelling of benzol, while in one case, where the benzol was pushed to 160 minims daily, there followed a toxic erythema and pruritus affecting the whole body, which, however, disappeared on discontinuing the drug. The appetite was not affected. The urine contained no perceptible increase of uric acid during the rapid leucocytic destruction, nor was there any general disturbance. In two cases a marked rise in the leucocytic count was observed for a few days; in three this was not observed. There was a rapid fall in the number of leucocytes which in three cases resulted in leucopenia, and a corresponding rapid decrease in the size of the spleen (much more rapid than with x ray exposures alone). There was an increase in the number of red cells and hemoglobin in all of the myelogenous types, and a rapid disappearance of the small though multiple lymph nodes in a patient with lymphoid leuchemia (in this last case the hemoglobin and red cell count remained unaffected). Stained blood specimens exhibited early and increasing degenerated leucocytes, especially of all mononuclear types, including the lymphocytes and myelocytes. The polynuclear cells showed degenerative changes, making a new and confusing blood picture. In spite of the disagreeable gastric symptoms, a notable improvement followed in all cases. As the benzol treatment was used in conjunction with the x ray treatment, all improvement cannot be due to the benzol.

Emetic Action of the Digitalis Bodies.—Cary Eggleston and Robert A. Hatcher's experiments seem to show that the nausea and vomiting following the use of therapeutic doses of the digitalis bodies is not due to their direct irritant action on the gastric mucous membrane, but to the action of the drug on the vomiting centre in the medulla, although massive doses directly applied to the gastric mucous membrane do cause irritation. On the other hand, the writers found that vastly larger doses of some of these drugs could be taken into the stomach without causing nausea or vomiting, in which case it was subsequently shown that there had been little absorption into the blood stream. Only traces of digitonin or the fixed oil of digitalis are found in the galenical preparations, and they exert no apparent effect on the stomach in therapeutic doses. True digitalin is the most actively emetic of the digitalis principles, digitoxin least, and digitalis being intermediate in this respect. The writers conclude that there is no evidence that digalen, digipuratum, digi-

talysatum, or the fatfree tincture of digitalis is in any degree less actively nauseant or emetic in proportion to its cardiac effect than any of the more common and less expensive galenical preparations of digitalis and strophanthus.

Medical Supervision of Factory Employees.—W. Irving Clark concludes, from the results of sixteen months' work, that the sickness and disability from accident in a large factory may be controlled by a simply equipped medical department. A thorough physical examination of all employees is possible and desirable. A system of prophylactic treatment in cases of sickness and accident will materially lessen the amount of sickness and lost time. A medical department can maintain the sanitation of a large factory and all matters pertaining to the general health, and instead of exciting distrust and antagonism will create a feeling of good will between employee and employer.

MEDICAL RECORD.

February 15, 1913.

Centenarians and Nonagenarians.—W. Gilman Thompson has found from investigation that the majority of these give a history of long lived ancestry, but this is not an essential characteristic, for a line of such ancestry may be broken by infectious diseases or by the unhygienic or irrational habits of individuals. Heredity, however, seems to be a more potent factor in producing nonagenarians than habits of diet or of hygiene, since the latter present the greatest variety in different cases; hence, the writer suggests, extreme longevity is largely a matter of natural selection. The aged often exhibit no predominating symptoms of any one disease, but become so universally sclerosed and atrophic that a general weakness is their only complaint, and in the mortality statistics where senility is given as a cause of death it is accepted without question by the health authorities. This, in fact, was the final diagnosis in twenty-six per cent. of the nonagenarians and in forty per cent. of the centenarians in the census of 1910.

Hodgkin's Disease.—J. Dudley Morgan remarks that, in the line of treatment, permanent improvement cannot be looked for either from surgery or medicine. Complete removal of the glands or their enucleation is invariably followed by recurrences either at the original location or elsewhere. Increasing doses of arsenic, though old, is still the practice at present, and is one of the very few remedies used with any benefit. The x rays should always be tried, for they reduce the swelling and retard new developments. The effect is only temporary, however, as the growths recur on cessation of the treatment, and it must sooner or later be resumed.

Scarlet Fever; Is It Contagious in the Desquamatory Stage?—Francis H. Mead concludes from a study of this question that statistics show that only in a small percentage of cases, secondary cases of scarlet fever arise from exposure of children to desquamation, and in these cases it is probable that the desquamation was infected from discharges from the nose, throat, or ears. The writer asserts that the old fashioned quarantine for scarlet fever is obsolete, and with no nasal, aural, or buccal complications, and no renal involvement, the

time of quarantine for an ordinary case will be cut down to twenty-eight or thirty days.

Associated Outpatients' Clinics of the City of New York; a Social Force.—E. H. Lewinski-Corwin says the aims of this association are four-fold and include the coordination of the work of existing dispensaries and outpatient clinics, the elimination of unworthy applicants, the promotion of proper standards of treatment, and of economy and efficiency in dispensary management. The constitution is rather flexible and it is expected that the association will include all the clinics of the city.

Indicanuria and the Phosphates.—John C. Warbrick has shown that although the phosphates are increased in a number of diseases (cancer of the stomach, phthisis, inflammation of the brain), they seem to have little or no influence in the production of indican.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

January, 1913.

Theory and Treatment of Diabetes.—Carl von Noorden emphasizes the fact that diabetes is a complicated disease and that little benefit accrues to the patient if attention is fixed upon the glycosuria alone. The functional powers of all the organs must be considered, which presupposes a knowledge of physiology and pathology that the extent of the anatomical and physiological disturbances and the effect of distant organs upon the sugar production be discovered. Each case must be studied by itself for variations from type often occur. There is always present an enormous irritability of the *sugar forming apparatus of the liver*. Lack of coordination between the intensity of stimulus and extent of response is the characteristic feature of the disturbed metabolism in diabetes. The extent of difference between stimulus and response determines the severity of the case. The stimuli which act as irritants to sugar production are the instreaming of carbohydrates and the digestive products of proteins into the liver, acceleration of general metabolic processes by excessive and tiring muscular work or acute fevers, psychic and other nervous excitements, adrenalin injections, thyroid gland feeding, etc. In the matter of treatment the excessive irritability of the sugar mechanism must be calmed and every burden avoided. In slight cases a wise choice of food and the exclusion of other irritants will suffice to maintain sugar production within normal limits, and although not cured and liable to get out of order through any indiscretion, the new conditions make for healing or at least a real and persisting improvement, during which Nature can effect a cure. Carbohydrates may be given in amounts of eighty to 100 grammes in most cases, protein in lessened quantities, and an increased ration of fats. Alcohol acts as a food and appears to diminish the formation of sugar. The use of opium is limited by its many drawbacks. The value of the mineral water cures is that for a month patients live, eat, and drink rationally, in an environment free from worry and care. Overindulgence in food must always be guarded against.

Exocardiac Causes of Failure of Compensation in Valvular Diseases of the Heart.—Alfred Stengel includes among these lack of regulated ex-

ercise, habits of overeating, obesity, disturbance of the abdominal circulation, improper breathing or thoracic diseases, and certain conditions of the blood. Metabolic disorders may play a part through an unfavorable influence on the vasomotor system or on the viscosity of the blood. Arteriosclerosis and its twin supertension determine cardiac breakdown in cases of old valvular disease.

Kinetic Theory of Graves's Disease.—George W. Crile considers Graves's disease as not one of a single organ or the result of some fleeting cause, but as a disease of the motor mechanism, that which is the source of physical action and of the expression of the emotions; its origin is in phylogeny and its excitation is through either some stimulating emotion intensely or repeatedly given, or some lowering of the threshold of the nerve receptors, thus bringing about a pathological reaction between the brain and the thyroid, which may be broken by diminishing the thyroid output and thereby allowing the brain to regain normal control, or by securing physiological rest and thereby insuring normal brain control, which in turn allows the thyroid to return to normal. The benefits of the operation of excision of a lobe or ligation are striking and uniformly successful in cases beyond medical relief. Because the conception here elaborated relates wholly to the release of energy it is called the kinetic theory.

Influence of Exercise on the Heart.—R. Tait McKenzie believes that even severe athletic competition does not, as a rule, do any appreciable damage to the circulatory system, and its part in accelerating the onset of arteriosclerosis is still difficult to assign. One must look, not to athletics, but rather to the more strenuous occupations, through long hours and under unsanitary conditions (coal mining and iron working), for light on this question. Although the exhaustion of continual overstrain in the young and growing is unfavorable, still recovery is rapid and complete. The writer concludes that "anything which curtails or prevents this natural means of growth (physical activity and constant and varied movements of the heart) must result in preventing the individual from reaching his highest possibilities.

Relation of Parasitic Amœbæ to Disease.—Charles F. Craig concludes that *Entamoeba coli* is a harmless commensal in the human intestine, while *Entamoeba histolytica* and *Entamoeba tetragena* are pathogenic species, capable of producing amœbic dysentery in man. *Entamoeba histolytica* and *tetragena* are strictly parasitic species and have not been cultivated. All cultivated species belong to the genus *amœba*, and differ greatly in morphology and life cycle from the parasitic amebas which belong to the genus *entamoeba*. It has not been proved that any of the amebas that have been cultivated are pathogenic to man.

Breast Tumors, with Special Reference to Carcinoma.—A. Primrose calls attention to the fact that nearly fifty per cent. of the patients are allowed to go untreated for a whole year before seeking operative relief. *Per contra*, only eight per cent. apply during the first month. The writer urges early application to the practitioner whenever a breast tumor appears. If cancer is thus early found, the modern radical operation can be car-

ried out with the best prospect of saving life.

Relief of Gastric Crises in Tabes dorsalis by Rhizotomy.—Charles H. Frazer advocates in no uncertain terms rhizotomy as a means of relieving pain in suitable cases of tabes dorsalis, especially where other measures have failed, because it has a sound physiological basis and has been often followed by gratifying results. He does not advocate the performance of the operation in two sittings, as favored by the German and French surgeons. While the grosser movements entailed in the removal of the laminæ do not increase the sense of touch for the more delicate coordination required in the subsequent manipulation of the roots, the advantages of doing the operation in one sitting are so much greater that unless the patient's condition prohibits, there should be no interruption.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
OF WOMEN AND CHILDREN.

January, 1913.

Effects of Industrial Strain on the Working Woman.—Slaughter calls attention to the close relationship that exists, both for men and women, between fatigue and efficiency. He cites various instances where there has been an increased output in shorter hours, the result of a proper appreciation of the necessity of adequate rest.

Diagnosis of Extrauterine Gestation.—Buckner holds that patients should be regarded as being likely to have extrauterine gestation who give a history of irregularity of menstruation, of spotting, and of abdominal pain usually of a cramplike character. The uterus also, does not usually correspond in size to the assumed length of the gestation. If, at the same time, a soft tumor is present adjacent to the uterus the diagnosis is probable. There may or may not be the concomitant signs of pregnancy. Women seen in collapse with a rapid pulse should be regarded as undergoing extrauterine gestation when other definite symptoms are clearly not responsible for the syncope.

Fistula in Ano.—Tracy describes a new method of operation, one in which the sphincter ani is not divided. The bowel is dissected free until the fistulous opening can be drawn down without tension below the sphincter muscle. The excess of tissue is dissected away and the bowel sutured to the cutaneous margin. The diseased tissue may then be dissected out.

Methods of Encouraging Breast Feeding and Contraindications to Breast Feeding.—Fussell quotes Fischer to the effect that ninety per cent. of poor mothers are able to nurse their children, while only seventeen per cent. of rich mothers are able to perform the same duty. He then reviews the conditions that are true contraindications, such as infected nipples, mastitis, failure of secretion, etc., also mentioning conditions which may be mere excuses.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

January, 1913.

Recurrent Vomiting.—J. A. Storck finds that recurrent vomiting is not infrequent, as, in a practice among children that is not large, he has met with twenty cases in the past thirty months, in patients ranging from twenty-eight months to fourteen years, the greatest number (fourteen) recurring between the ages of four and eleven years.

In sixteen cases, ten of which were in girls, nervous phenomena were well marked, and all but four patients were from so called neurotic families, one or both parents being in this class. The children were for the most part well nourished, except in the very young, or, in some of the older children after prolonged attacks of vomiting. In only three was there evidence of malnutrition from other causes. The first and subsequent attacks, in a large percentage of the cases, were of sudden onset, the child being apparently in perfect health; in a small minority some slight indisposition preceded the attack. The first symptom was listlessness, noticing somewhat when aroused, but relapsing into an apathetic state. The temperature range was wide, from subnormal to 104° F. The vomiting begins without warning, at first the stomach contents (food or fluid), later gastric juice and mucus. These attacks may occur several times a year or much oftener, and may last from several hours to a few days, the vomiting occurring as often as every fifteen minutes. Constipation is the rule, with a sweetish (acetone) breath and thirst is pronounced; urine scant and of sweetish odor (due to acetone). The attacks lessen or disappear altogether at puberty. The writer emphasizes two points in these cases: The presence of diacetic and oxybutyric acids and acetone in the urine; the successful use of an alkali (sodium bicarbonate) in the treatment. Finally, he believes that the disease is probably due to some fault in digestion or metabolism.

NEW YORK STATE JOURNAL OF MEDICINE.

January, 1913.

Surgical Treatment of Prolapse of the Uterus.—C. C. Barrows believes that all the usual methods of treating this condition are based upon erroneous principles. He characterizes the operation of ventral fixation or suspension as unsurgical, unscientific, unnecessary, and unlawful, and cites the results of such procedures in substantiation of his criticism. No operative measure will be successful in the treatment of this condition which does not preserve intact the nutrition of the anatomical structures which comprise the upper pelvic floor. This calls for the preservation of both vascular and nerve supply wholly uninjured, or essentially so. An operation which does this and which in Barrows's hands has given excellent results consists of three steps, viz.: 1. Amputation of the cervix uteri; 2, anterior colporrhaphy; 3, repair of the torn or relaxed perineum by the flap splitting method with approximation of the separated perineal muscles and fascia, together with shortening of the round ligaments by Alexander's method. This plan does not endanger life and necessitates only a short period in bed—two weeks—with very little discomfort to the patient, and in properly selected cases results in a permanent cure. He regards the resort to the shortening of the round ligaments by the Alexander method as the most important part of the procedure. It essentially changes the direction of the uterine axis and makes the shortened and blunt cervix impinge upon the posterior vaginal wall above the restored perineal body instead of following the axis of the vagina. Barrows also gives a detailed description of Polk's method for restoring a uterine prolapse in cases in which the preceding method is not applicable.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held at Old Point Comfort, Virginia, December 17, 18, and 19, 1912.

The President, Dr. J. M. T. FINNEY, of Baltimore, in the Chair.

(Concluded from page 422.)

Unilateral Hematuria of the So Called Essential Type.

—Dr. R. L. PAYNE, Jr., of Norfolk, and Dr. WILLIAM DE B. MACNIDER, of Chapel Hill, reviewed the literature on this subject and reported five cases of unilateral hematuria of the so called idiopathic type, which were relieved of all symptoms by nephrotomy. The authors were inclined to believe that in the majority of these cases of unilateral hematuria the condition was one of chronic inflammation of one type or another, and detailed a series of experiments which apparently excluded as a causative factor certain acutely developing, vascular changes. These experiments would, therefore, apparently contravene Klemperer's theory of angioneurotic edema, and also Albarra's idea of a slight lesion of nephritis being a sufficient cause of the unilateral hematuria.

Suppurative Pyelophlebitis.—Dr. CHARLES R. ROBINS, of Richmond, related in detail a case of suppurative pyelophlebitis which occurred in his practice in 1911. In this case Van Cott's vaccines were used. In all, twenty-eight doses were given. It seemed to him that these vaccines caused improvement for a time, but finally the patient's abdomen was opened in two places, and it was found that fluid had become purulent. The patient gradually declined and died after an illness of one hundred and fifty days. In view of the fact that this malady was usually rapidly fatal, and that no plan of treatment had yet effected a cure, he thought treatment along this line by vaccines offered the only hope, and the apparent success of these vaccines at one time in this case was encouraging.

Embryogenetic Relationships of Tumors of the Kidney, Suprarenal Gland, and Testicle.—Dr. LOUIS B. WILSON, of Rochester, Minnesota, said the basis of his paper consisted of a study of the pathological specimens obtained at operation and autopsy in the Mayo clinic and a study of the human and comparative embryology of the urogenital system. The writer summarized the results of his observations as follows:

Renal Tumors. 1. Of ninety-two tumors studied, there were three pelvic papillomas, four carcinomas, one squamous celled epithelioma, one adenoma, one fibroma, seven sarcomas, one Wolffian tumor, three embryomas (Wilms's tumors), and seventy-one mesotheliomas. 2. The renal pelvic papillomas and carcinomas apparently arose secondarily to chronic irritative processes of the adult pelvic epithelium. 3. The rare squamous celled epithelioma probably was a neoplastic development from the embryonic inclusion within the renal pelvis of ectoderm which had found its way into the lower end of the primitive excretory duct by way of the cloaca. 4. The embryomas of the renal cortex composed of renal and other tissues and occurring in young children were, according to Wilms, derived from inclusions of the lateral embryonic plate within the caudal portion of the nephrogenic cord in the early embryo. 5. The most numerous tumors of the renal cortex, the so called hypernephromas or Gravitian tumors, were apparently mesotheliomas derived from nephrogenic vesicles which had failed in the early embryo to form a tubular connection with the renal pelvis. 6. Most of the few true sarcomas of the kidney developed primarily in adult tissue of the renal capsule and involved the cortex secondarily. 7. The renal cortex was also frequently the site of inclusions from the mesonephros and rarely of inclusions from the suprarenal gland. Rarely, if ever, did either of these inclusions in the renal cortex form malignant tumors.

Adrenal Tumors. 8. Of the three primary tumors of the adrenal studied, one was an adenoma, and the other two hypernephromas arising from the adrenal cortex. 9.

Primary malignant tumors of the adrenal were either round celled sarcomas or more frequently hypernephromas arising from the adrenal cortex. 10. Adrenal hypernephromas frequently induced abnormalities of sex and strength. 11. Tumors of the adrenal, in whatever stage of their development, bore no histological resemblance to most mesotheliomas (so called renal hypernephromas).

Testicular Tumors. 12. Of the twenty-one tumors of the testicle, all of the ten which it was possible to study in histological detail were teratomas. 13. So far as could be determined, the history and histology in these nineteen cases were in harmony with Ewing's hypothesis that teratomas of the testicle arose from sex cells whose normal development had been suppressed. 14. The difference in time of development of the embryonic crop of genitaloid cells and the next generation which appeared at puberty might account for variations in structure and tempo of the testicular teratomas.

Prostatectomy, with Special Reference to the Sequels.

—Dr. JAMES E. MOORE, of Minneapolis, stated that the unsuccessful results of prostatectomy had not been as faithfully reported as the successful ones. The mortality after the upper and lower operations was practically the same in good hands, but the trend of the surgical world at the present time was toward the upper operation. Every surgeon should be proficient in both. Neither operation was a fit one for novices to experiment with, because both were serious major operations accompanied by some mortality. In the upper operation, instead of cutting through the mucous membrane in the floor of the bladder, it was better to crowd the finger into the internal meatus until the mucous membrane broke and follow through this opening with the enucleation of the prostate, as taught with the author and first published by L. L. McArthur. Conservatism should control these operations, but it was not conservative to postpone operation until organic changes had taken place in the bladder and kidneys. Every general practitioner should realize that when he was first called to relieve retention from enlarged prostate he was assuming a grave responsibility, because infection at this time might end fatally in spite of the surgeon's best efforts. Enlarged prostate was easy to diagnose, but an operation should never be recommended simply because there was enlargement. A patient should never be introduced into catheter life without first having had the advantages of prostatectomy urged upon him. Old age was not a contraindication to the operation.

The results following prostatectomy were not always satisfactory, even in suitable cases. Patients frequently returned to the family physician after having been operated upon, in very little better condition than before the operation and sometimes worse. Impotence followed the operation in a certain percentage of cases, and until we knew just what caused the impotence we should be unable to prevent it. It was probably due to disturbance to the nerve supply. Gangrene of the bladder was an occasional sequel, to be prevented by handling the tissues as gently as possible. Careful search for stone should be made at every operation, because many times they had been overlooked. They undoubtedly formed after the operation in some cases. This should be prevented by emptying the bladder of blood clots and all detritus. When the bladder was in a reasonably good condition the cystoscope might be used to advantage, but with a badly infected bladder it did more harm than good, and catheterization of the ureters was unwarranted.

With improvement in our technic, urinary fistulae were much less frequent than formerly, but were still an occasional sequel in cases that required unusually prolonged drainage. In cases of atony of the bladder the patient should be told that he would probably have to continue the use of the catheter after the operation, but that catheterization would be much easier and more comfortable. Incontinence or dribbling was an occasional sequel after operations, owing to injury to the sphincters or their nerve supply. To prevent this sequel the sphincters should be entered as little as possible, and in the upper operation more careful closing of the wound should be performed. The tendency in the upper operation was toward the more complete closing of the wound. While present day prostatectomy was one of the most beneficial operations at our command, the number of failures and sequels was too numerous. Might not less radical measures be better, such as removing the third lobe and dilating the prostatic ure-

thra through a suprapubic opening, which was accompanied by neither complications nor sequels.

Fat Hernia.—Dr. JOSEPH RANSOHOFF, of Cincinnati, remarked that, according to his conception, certain characteristics accompanied primary fat hernia: 1. A true fat hernia was a protrusion of a preperitoneal fat mass or lipoma through one of the ordinary hernial apertures. It followed the course pursued by an ordinary hernia. 2. When a peritoneal process occurred within such a hernia, it was always difficult to find it because of its small lumen. Such a process when present, in a minority of his cases, was secondary to the fat hernia and probably resulted from traction. The ordinary contents of a hernia were not found and could hardly enter into the narrow serous tube within the fat mass. 3. The onset of a fat hernia might be sudden, like that of the ordinary type of hernia with preformed sac. In three of the cases recorded the history of sudden onset was very clear and the proportion of cases too large to be charged to inaccuracy of observation on the part of the patient. 4. The diagnosis of fat hernia was far from easy. Although not reducible, they were capable of a seeming reduction in a fair proportion of cases. 5. An impulse on coughing could usually be obtained, since the hernia could receive the brunt of the increase of intraabdominal pressure like an ordinary reducible hernia. 6. In very rare instances symptoms of strangulation might result from torsion of the fat hernia. 7. The treatment of fat hernia differed in no way from that of the ordinary type. It was probable that these cases would only be recognized as fat hernias during the operation, therefore, measures for radical cure would be instituted, such as those in vogue for the ordinary forms of hernia.

Experimental Devascularization of Intestines with and without Mechanical Obstruction.—Dr. J. SHELTON HORSLEY and Dr. C. C. COLEMAN, of Richmond, reported twelve joint experiments, all on dogs, done under full anesthesia in which segments of intestine from the lower ileum, varying from two to five inches, were devascularized by cutting the attachment of the mesentery close to the bowel. In all except one the omentum was wrapped around the devascularized segment. In five instances the segment was obstructed by tapes at each end. Two of these dogs died from gangrene and perforation of the loop. One died after three days without perforation; one lived thirteen days, and the other lived fourteen days. In seven dogs a loop of intestine was devascularized without being obstructed and the omentum wrapped around the segment. None of these dogs died as a result of the operation. The authors concluded that either no toxic substance was formed in the devascularized loop or segment of intestine which was unobstructed, or else this substance, if formed and excreted, was not absorbed by the normal mucosa. They emphasized the fact that in dogs at least a loop of bowel when separated from its mesentery and unobstructed might be properly nourished by wrapping the omentum around it.

Acute Hematogenous Infection of the Kidney.—Dr. J. M. MASON, of Birmingham, summarized as follows: 1. Acute hematogenous infection or septic infarct of the kidneys was of comparatively frequent occurrence and often overlooked. 2. Serious injury to or disease of one kidney acted as a predisposing cause. 3. While nephrectomy was demanded in the fulminating type, early diagnosis and operation would permit of decapsulation with incision and drainage of infarcts in certain of the milder cases, thereby saving some kidneys which would require removal if treated later. 4. The relation of the movable kidney to the development of septic infarct offered an indication for nephropexy worthy of consideration. 5. When exploration is acute supposedly abdominal conditions failed to reveal lesions sufficient to account for the symptoms present, the possibility of septic renal infarct should be borne in mind and the condition of the kidney ascertained before completing the operation.

Head Injuries.—Dr. ARMORGAN VANCE, of Louisville, reported eight cases: 1. Patient, twelve years before operation, was struck on the head with a shovel, followed by epilepsy. Operation twelve years later at the site of injury, consisting of the removal of a good sized button, resulting in complete recovery. There were no further epileptic seizures. The patient died of pneumonia ten years later. 2. Patient, forty-five years old, became paralyzed two days before operation, and gradually lapsed into

complete coma and paralysis developed, beginning on the left side and extending to the whole body, including the face. Sensation on the left side was entirely absent, and greatly diminished on the right. Bowels and bladder paralyzed; eye reflexes absent. Operation: Upon shaving the scalp the head showed a curious condition. The whole scalp was edematous and the right half presented the appearance of angioma, the veins were so greatly dilated. A piece of bone the size of a ten cent piece was removed and the opening then enlarged to the size of half a dollar. The dura was incised, the brain explored with suction needle, and one half ounce of fluid obtained. Wound was closed without drainage. Complete recovery. This condition resembled very much what is designated by two or three authors as "wet brain." 3. Boy, aged ten years, head injury in street car accident. Scalp torn from both sides of the skull. Loss of the parietal bone. Scalp cleansed, parts adjusted, and separate dressings applied. Twelve days later, with the patient in good condition, another doctor was called to soak the dressing off, which the speaker declined to do. The uncovered meninges became infected, and the boy died three days later. 4. Injury of the skull in the right parietal region, patient being struck on the head by a baseball. Decompression operation nine weeks later, with removal of a good sized button. Complete recovery, with no recollection by the patient of the accident. 5. Boy, aged ten years, sustained extensive compound, comminuted fracture of the skull. The mastoid region and the area back of and above the ear were crushed. Operation consisted of removal of several pieces of bone, the scalp being sutured without drainage. Complete recovery. 6. Epilepsy, with loss of speech and power of locomotion following an injury to the head. Examination revealed depression over the left brow and temporal region. Operation consisted of removal of a large piece of bone without subsequent drainage, followed by complete recovery. 7. Pistol wound at the junction of the frontal with the parietal bone, large enough to admit one's thumb. Operation consisted of removal of fracture with some brain matter as well as fragments of bullet, followed by complete recovery. 8. Pistol wound through the roof of the mouth, a little anterior to the junction of the soft with the hard palates, the bullet going entirely through the brain. No operative measures were carried out at this time. Mouth sprayed with antiseptic fluids and liquid nourishment given. At the end of six weeks the bullet was removed together with several pieces of the skull. This was followed by complete recovery.

Surgery of the Single and Horseshoe Kidney.—Dr. CHARLES H. MAYO, of Rochester, Minnesota, stated that developmental abnormalities of the genitourinary system were the most frequent. Of this group irregularities of the circulation of the kidney were the most common. Their own autopsy records had shown in a single year as high as four per cent. of cases presenting gross anomalies of the kidney and ureter of surgical importance. That it was necessary for the surgeon thoroughly to understand these anomalies was obvious, from several points of view. A knowledge of the early development of the genitourinary system made intelligible the resultant anomalies and various pathological conditions. We saw the possible development of congenital, cystic kidney resulting from a failure of certain portions of the secreting renal tissues to become united with the collecting portion. Wilson had called attention to the probable development of the so called hypernephromata as neoplastic growths from similarly unattached secreting portions of the kidney.

Among thirty-six cases of gross renal and ureteral anomalies observed in their clinic during five years, seven were found incidentally to other abdominal operations, twelve were of the horseshoe type, and six of the single or asymmetrical type. Of 649 operations on the kidneys and ureters during this period of five years, there was an average of one serious anomaly associated with disease in every twenty-six cases. In the horseshoe form ninety per cent. were fused at the lower pole. At the point of union there might be only connective tissue (in fifteen per cent. of the cases). Usually the fusion consisted of renal tissue and varied from a small area to the full width and thickness of the kidney. Ninety per cent. of cases were fused in front of the great vessels. The most common disease affecting horseshoe kidney was hydronephrosis which might later become pyonephrosis. This hydronephrosis occurred in moderately young individuals, while

pyonephrosis and lithiasis were usually seen in middle age or later. Tuberculosis was rarely seen. More horseshoe kidneys were found in women than in men, and more single kidneys in men than in women. When the kidneys were fused by heavy renal tissue, symptoms might undoubtedly be present. Rovsing recently published cases in which the diagnosis was confirmed at operation. Despite the diagnostic data which had been given, as a rule the condition would not be recognized before operation. Braasch indicated, in addition to the cystoscope and radiograph, the great assistance of pyelography with colloidal silver injections. The lesson to be learned, when we did not have absolute data as to the condition of both kidneys, was to always explore the other kidney, usually through a separate incision, before the removal of a tumor of the kidney or the removal of a diseased kidney. In abdominal surgery, where the type of the presenting tumor was questionable, the kidney should be palpated before removal of the tumor. In some instances transperitoneal incision was indicated. The lateral incision described by W. J. Mayo would suffice in most cases. At operation the possibility of horseshoe kidney must be kept in mind, especially whenever difficulty was experienced in delivering the lower pole. This occurred in the writer's last case, where pyonephrosis of half of the horseshoe kidney was present. The renal tissue, nearly the size of the normal kidney, passed in front of the large vessels. After examination of the blood supply, the fused portion was divided and sutured with catgut. In a case of horseshoe kidney, which was not otherwise pathological, Rovsing relieved the pain and general symptoms by division of the isthmus.

Defect in the Cheek and Its Repair by Plastic Operation.—Dr. JOHN STANGE DAVIS, of Baltimore, reported the case of a male, aged sixteen years, in whom there was a defect, 6.3 cm. in diameter, involving the whole thickness of the right cheek, probably caused by cancrum oris, which occurred as a typhoid complication two years previously. The surrounding soft parts were infiltrated with scar tissue; the tongue was adherent to the lower border of the defect; there was inability to open the jaws. To close this defect a flap was necessary which should fulfill several conditions. It should have enough thickness to fill the defect without causing a depressed scar after healing was complete. It should be formed of tissue which would conform in appearance to the surrounding skin externally, and take the place of the mucous membrane of the mouth. A rectangular flap 7.5 by sixteen cm., of whole thickness of skin and subcutaneous fat, was raised from the right arm, the pedicle being in the middletoad region. The flap was folded on itself and the distal end sutured to the pedicle and underlying muscle, thus bringing raw surface to raw surface and forming a flap with fat within, and the whole thickness of the skin on front and back. This was held flat on a wire frame. Two weeks later the tongue was freed, the arm was raised, and the flap was sutured into the upper two thirds of the defect. The arm was held in position by a plaster cast. The pedicle was amputated after eleven days, and eleven days later the remainder of the opening was completely closed. Several attempts were made to relieve the fibrous ankylosis of the jaws, but without success.

By this method of treatment the defect was filled by a pad of tissue with the whole thickness of the skin on both sides. The circulation of the flap was assured before transplantation was begun. Most of the shrinkage had taken place before it was transplanted. There was no unsightly scarring of the cheek or neck. The area from which the flap was secured was healed by Thiersch grafts by the time the flap was ready for transplantation. On the whole, the result was very satisfactory.

Diagnosis and Treatment of Renal and Ureteral Calculi.—Dr. JOHN B. DEEVER, of Philadelphia, reported sixty cases of renal and ureteral calculi. Attacks of typhoid had preceded the onset of symptoms of stone. A catarrhal condition of the pelvic and ureteral mucosa was the chief predisposing factor in the formation of kidney and ureteral stones. The initial symptoms were attacks of renal colic, trauma, falls, blows, or kicks over the kidney area. Repeated attacks of colic were more frequently due to stones in the ureter. Location, type, frequency of attacks, and points of reference indicated the site of the stone. Physical examination in cases of aseptic and uncomplicated renal and ureteral calculi gave no assistance

in diagnosis in one half or more of the cases, but was of more assistance in renal than in ureteral cases because of the presence of a palpable mass in a percentage of cases. The diagnosis was much facilitated in difficult cases by the use of pyelographic methods. Tenderness and muscular rigidity were the most important physical signs. Microscopic hematuria immediately following a severe attack of colic was suggestive of stone. The skiagraph was the most valuable means at our disposal in the diagnosis of urinary calculi. In five of his cases the x ray failed to find the stone, which in three instances was found at operation in the ureter once, and in the kidney twice. The use of waxed tipped catheters was said to be in these rare cases the court of last appeal in diagnostic procedure, but the speaker relied entirely on the clinical history. The most frequent causes of ureteral obstruction were either physiological or anatomical. Before attempting any operation it was necessary to be satisfied as to the functional activities of the renal tissue, to be assured that the reserve force of the healthy or, at least, diseased kidney was sufficient to sustain the renal function in the event of the necessity of nephrectomy, which could not always be foretold. Stones situated in the lower terminal (2.5 cm. of the ureter) were removed transvesically. In renal calculus the kidney was exposed and, if possible, delivered through an oblique loin incision; the stone was palpated and an incision made over it and the stone removed with forceps. In nine instances palpation failed to demonstrate the presence of stone. In five of these it was correctly located with the needle. Needling was a practical, harmless, and valuable procedure in cases in which palpation failed. The total mortality in the operated cases of this series was 6.5 per cent.

Election of Officers.—The following officers were elected: President, Dr. John Young Brown, of St. Louis; vice-presidents, Dr. ApMorgan Vance, of Louisville; Dr. Lomax Gwathmey, of Norfolk; treasurer, Dr. Le Grande Guerry, of Columbia, S. C.; secretary, Dr. William D. Haggard, of Nashville.

Atlanta, Georgia, was selected as the place for holding the next annual meeting, in December, 1913.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Chloride of Lime in Sanitation. By ALBERT HOOKER. New York: John Wiley & Sons. London: Chapman & Hall, Ltd., 1913.

There are very few elements which are so widely distributed and so much used as chlorine. In its combination with sodium, we have only to think of our table salt to be convinced of the necessity of this element. In its combination with slaked lime, it has been used for over one hundred years in bleaching processes; the production of this chloride of lime dating from 1800 has been very great. We see, for example, that in 1800 there were manufactured, in Great Britain, fifty-two tons at \$685 a ton; and in 1870, 925 tons at \$41.50 a ton, which increased in 1910 to 110,000 tons. The estimate given for the world's production of chloride of lime is 400,000 tons. In 1880 the United States did not produce any chloride of lime, but imported 34,000 tons. Since then a great change has taken place, and in 1910 the statistics for the United States show a production of 80,000 tons. The uses for which chloride of lime is put to, have also greatly increased; it is used not only in its industrial application of bleaching, but also for deodorizing or disinfecting purposes, but it must be remembered that its action is not chlorination, but oxidation.

Mr. Albert H. Hooker deserves great credit for bringing out the importance of chloride of lime in sanitation. The book prepared by him well demonstrates the use of this chemical for water purification, sewage disinfection, street sprinkling and flushing, its use in epidemics, surgery, and general sanitation, the benefit derived from it on the farms, especially in dairies, and the great help it is in fighting the house fly.

He gives in seventy-seven pages a good synopsis of the subject and follows this up with about 150 pages of bibliography. An index divided in two parts, as subject and as name index, concludes this valuable addition to our books on hygiene.

Genitourinary Diseases and Syphilis. By HENRY H. MORTON, M.D. Third Edition. Philadelphia: F. A. Davis Company, Publishers, 1912. Pp. xiv-605. (Price, \$5.)

The new edition of this work shows the same attention to detail that was the chief note of previous editions. The section on syphilis has been considerably enlarged, and an excellent description of the Wassermann reaction and technic of salvarsan administration are given. The newer diagnostic tests of renal function and operative cystoscopy, as well as the electrical treatment of bladder tumors, are described. The work is profusely illustrated, practical in its standpoint, and cannot fail to continue to please its old friends and to make new ones. It is a most excellent textbook for college work.

Diseases of Women. By THOMAS GEORGE STEVENS, M.D., (Lond.), F. R. C. S. (Eng.), M. R. C. P. (Lond.). (London Medical Publications.) London: University of London Press, 1912. American Agents, Oxford University Press, New York. Pp. xiii-431. (Price, \$5.50.)

This work is one of a series of publications edited by one who includes in the volume the result of his ten years' experience in teaching gynecology. One strong point in its favor is that due consideration is given to the pathology pertaining to the subject—as is given to medicine and surgery. Certainly the diseases of women become very much simplified when the subject matter is presented on a pathological basis. There can be no doubt that the practical application of surgical principles on a sound pathological basis, has had much to do with the great improvements which have been made in the management of pelvic disorders.

The book contains 420 pages, divided into eighteen chapters, with 202 practical illustrations, drawn mostly by the author himself. Comparisons are drawn between the normal and the pathological, both in descriptions and illustrations.

Much of the subject matter is treated briefly, but clearly and concisely. The book should be well received by the profession at large, as well as for a textbook by medical students.

Sleep and the Sleepless. By JOSEPH COLLINS, M.D. New York: Sturgis & Walton Company, 1912. Pp. 129. (Price, \$1.)

This book, as the author states, is written for the lay reader, and its aim is to help sleepless people to cure themselves. To this end are considered theories concerning the nature of sleep, its physiology, and the many factors which tend to cause insomnia. Many valuable suggestions are made for simple, rational measures to overcome sleeplessness, and the use of drugs is emphatically discouraged. Reading is highly recommended as a soporific, especially if the book selected be a "lulling work of ponderous philosophy or of monotonous description or soothing charm, which he may read without being compelled to understand or to become emotionally stimulated or excited."

Tuberculin in Diagnosis and Treatment. By LOUIS HAMMAN, and SAMUEL WOLMAN. New York and London: D. Appleton & Co., 1912. Pp. xvi-381.

To all physicians who are interested in tuberculosis—and who in this day is not?—this book will be more than welcome, for it gives a clear and judicious presentation of what is at present known about tuberculin in diagnosis and treatment. In reading this well written book, one quickly realizes that its authors speak from personal experience, and that they are constantly striving, and successfully, to present the truth as far as known. This is in marked, and welcome contrast to some other books on this subject. The very logical summary of the work done to elucidate the nature of the tuberculin reaction is excellent, and the same is true of the short but clear sketch of anaphylaxis. The relative value and proper place of the subcutaneous, cutaneous, percutaneous, and conjunctival methods of making the tuberculin test, as well as the significance of constitutional, local, and focal reactions is well brought out, the authors believing that in diagnosis, the subcu-

taneous injection should be used only when it is desired to produce a focal reaction. The remarks under the heading, Choice of Patient, will appeal to the common sense of all who have had any experience with tuberculosis. It is impossible in a short review even to mention all the excellences of this book, so we shall merely cordially recommend it to our readers.

Muscle Spasm and Degeneration in Intrathoracic Inflammations. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D. St. Louis: C. V. Mosby Company, 1912. Pp. *105. (Price, \$2.)

As supplemental to the older methods of examination for endothoracic disease Pottenger makes a plea for the employment of light touch palpation directed to the detection of local muscle spasm and atrophy in the superficial areas overlying visceral disease. The rigidity found is analogous to the abdominal rigidity over appendicitis and other abdominal disease, and is explained on the basis of visceromotor reflexes. The atrophy is probably due to exhaustion of the affected muscles. As a result of an extensive experience, especially with pulmonary tuberculosis, the author feels that information as valuable, constant, and trustworthy can be obtained by this method as by percussion and auscultation.

Bacteria. By Dr. MAX SCHOTTELIUS. Second Edition. Translated by Staff Surgeon HERBERT GEOGHEGAN, R.N. London: Henry Frowde (Oxford University Press) and Hodder & Stoughton, 1912. Pp. xii-324. (Price, \$3.50.)

For one who was particularly interested in bacteria according to their position in the scheme of nature and in regard to other forms of life this volume would be most attractive. The translation is good, the style easy and agreeable. One could absorb much valuable information in a very pleasant manner. If, however, this publication is intended as a textbook or a book of reference in regard to the study of bacterial life it would be of little value. Facts are concealed in the text without any indication of their whereabouts, and many important facts are absent. That bacteria can be stained is mentioned, but nothing is said as to how it is accomplished. The section on tuberculosis is most interesting and instructive but there is little about the bacillus *per se*. The same holds good of typhoid fever, diphtheria, etc. Phagocytosis is mentioned and so is Ehrlich's side chain theory, but neither one is very fully presented. If this book is to be considered in reference to the biological relations of bacteria it can be highly recommended; if in reference to the needs of the students, either undergraduate or postgraduate, it is not specially valuable.

Miscellany.

Resolution, Adopted at the Regular Meeting of the Brooklyn Medical Association, February 12, 1913.—*Whereas*, with laudable intent but misguided aim, there has recently been introduced before the Assembly of the State of New York, three certain items of legislation, to wit, Assembly Bill No. 692 introduced by Mr. Walker, and now before the Committee on Codes, entitled An Act to Amend the Penal Law in Relation to the Sale or Possession of Cocaine or Eucaïne, and Assembly Bill No. 53 introduced by Mr. Kerrigan and referred to the Committee on Public Health, entitled An Act to Amend the Public Health Law Generally, and, Assembly Bill No. 52 introduced by Mr. Kerrigan and entitled An Act to Amend the Public Health Law in Its Relation to the Sale of Cocaine, Eucaïne, and Other Drugs, referred respectively to the Committee on Public Health and Codes, which said amendments propose further to regulate the sale, possession, and dispensing of opium, morphine, cocaine, and their derivatives and salts, and,

Whereas, the said Assembly Bill No. 692 does, in the opinion of the Brooklyn Medical Association, place unwarranted, needless, and embarrassing restrictions upon the possession, prescribing, and use of these said drugs, to wit, cocaine and eucaïne, upon the medical profession, thereby greatly lessening and interfering with the lawful and proper use of such drugs by the medical profession

at large and in particular with those members of the profession specializing in surgery, eye, ear, nose, and throat work, and,

Whereas, the said Bill No. 692 not only restricts to a dangerously small maximum, the quantity and strength in solution of the said cocaine, eucaïne, etc., which such physicians may procure, possess, or prescribe to patients requiring, in their proper judgment, such medication, and,

Whereas, said Bill No. 692 further dictates the sole form and manner in which such cocaine and eucaïne may be prescribed, and,

Whereas, said Bill No. 692 further imposes upon said physicians the onerous and practically impossible burden of maintaining a written record of all prescriptions containing said cocaine and eucaïne issued, or minute doses of the same administered by him, to his various patients, and,

Whereas, said Bill No. 692 further imposes upon such physicians in disregard of all "rights of sanctuary" or confidence guaranteed to his patient by law; and all rights to the privacy of his domicile, the duty of displaying, at such domicile, to public officers and their promiscuous deputies, without limitation as to time, number, or circumstances, and for the obvious purpose of facilitating pernicious and unwarranted "fishing excursions" to bolster up weak or groundless prosecutions, with evidence so obtained, the private and hitherto considered inviolable records of his practice, and,

Whereas, said Bill No. 692 obviously and insultingly implies and imputes to said physician the deliberate intent to commit a crime and would deprive him, upon accusation, based upon the slightest discrepancy in his book-keeping of the constitutional presumption of innocence, and compel him, *prima facie* to an affirmative defense of misdemeanors and felonies, which last being crimes involving moral turpitude, would render him liable to imprisonment, loss of citizenship, and his right to practise as a physician; and,

Whereas, the said Bill No. 692 further places dangerous and needless restrictions and hindrances upon the possession and administration of such cocaine and eucaïne in hospitals and dispensaries; and,

Whereas, the foregoing restrictions are fraught with grave probabilities for danger to the successful treatment of disease and the performance of operations common to plastic, special and minor surgery; and,

Whereas, "The Bill to amend the Public Health Law," to wit, Assembly Bill No. 52 introduced by Mr. Kerrigan, like its fellow monstrosity, before mentioned, seeks to place upon duly licensed physicians unnecessary and dangerous restrictions in the prescribing of opium, morphine, cocaine, eucaïne, chloral, etc., by requiring the physician to prescribe the same when required upon a peculiar and particular "blank," which in view of the remote and not always accessible source of supply, of said blank, may render compliance therewith and the obtaining of the drug in time of need impossible or dangerously delayed; and,

Whereas, the said Bill No. 52 requires that certain records be kept by the physician using the before mentioned drugs, which records without reasonable restriction to time, place, or specified authorities are to be kept by such physician at the disposal of ambiguous authorities; and,

Whereas, said Bill No. 52 would in its construction, place unwarranted and dangerous restraint upon the proper administration of said morphine, cocaine, chloral, etc., by the physician in his routine practice; and,

Whereas, said Bill No. 52 would be in the proper carrying out of its provisions require the constant attendance of the physician or a trained nurse, acting under his supervision, in the treatment of eye, ear, nose, and throat disease wherein their local application is frequently and necessarily continuous, for extended periods and would, in consequence, entail an almost impossible time and labor recording and computing the minutes quantities generally used, particularly in cases treated in hospitals; and,

Whereas, subdivision 4 of said Bill No. 52, limits the discretion of the physician, as regards the period during which he may, in his judgment continue the administration of said morphine, cocaine, eucaïne, chloral, etc., and imposes upon such physician or his patient the burden and unnecessary expense of consultation, if the drug is to be continued in further use; and,

Whereas, the alternative to private consultation is a condition of paternalism and espionage degrading to the physician and one that must of necessity create hostility and doubt, in the minds of the patient and his friends, and loss of confidence in the physician as a medical adviser; and,

Whereas, the said Assembly Bill No. 53 introduced by Mr. Kerrigan seeks to limit the time that a patient may have in his possession the drugs cocaine, eucaïne, etc., to ten days; and,

Whereas, certain conditions and diseases frequently require administration of these drugs for various lengthy periods, greatly in excess of ten days; and,

Whereas, all of the said bills, in so far as their provisions relate to the possession, prescribing, and administration of morphine, cocaine, chloral, etc., by the duly licensed physician in the proper performance of his duties and in the treatment of disease, and in private and hospital practice of medicine and surgery, are obviously bred in ignorance of the needs of patients and in contempt of the high moral character of the medical profession in general, and in reckless disregard of the results of such restrictions upon the physical well being of the patients requiring the proper administrations of such drugs; and,

Whereas, the conditions imposed upon duly licensed physicians, under these bills are onerous, practically impossible, and a hardship to a busy physician and revolutionary in their theory of predetermined guilt of moral turpitude; and violative of the right of privileged communication between physician and patient and of the right of "privacy of domicile" except where due process of law and proper writ is had;

Now therefore, be it resolved, that the Brooklyn Medical Association condemn and oppose these Bills Nos. 52, 53, and 692, in their provisions relating to the possession, use, and prescribing of morphine, cocaine, chloral, etc., by duly licensed physicians, in the proper treatment of disease, as unnecessary, dangerous, improper, against common sense and public policy, and gratuitously insulting to the medical profession, and, while recognizing the need for legislative check upon the pernicious sale of potent narcotics and habit forming drugs and sedatives, we demand that in the interests of health and welfare of the community these bills be defeated, unless relieved of their useless and dangerous restrictions and impositions as regards the obtaining, possessing, and lawful use of these drugs by the medical profession.

D. W. WAUGH, M. D., president.

H. ARROWSMITH, M. D., vice-president.

T. C. PAFFARD, M. D., secretary.

Meetings of Local Medical Societies.

MONDAY, March 3d.—German Medical Society of the City of New York; Clinical Society of the New York Throat, Nose, and Lung Hospital; Roswell Park Medical Club, Buffalo; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society; Hornell Medical and Surgical Association.

TUESDAY, March 4th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Long Island Medical Society; Hudson County, N. J., Medical Association (Jersey City); Bridgeport, Conn., Medical Association.

WEDNESDAY, March 5th.—Long Island Society of Anesthetists; Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Psychiatric Society of New York; Bronx Medical Association; Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine; Elmira Academy of Medicine.

THURSDAY, March 6th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Dansville Medical Association.

FRIDAY, March 7th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

SATURDAY, March 8th.—Therapeutic Club, New York

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 19, 1913:

Cofer, L. E., Assistant Surgeon General. Directed to proceed to Philadelphia for special temporary duty. **Cumming, H. S.**, Surgeon. Relieved from duty in command of the Cape Charles Quarantine Station, and directed to report to the director of the Hygienic Laboratory, Washington, D. C., for duty. **Delgado, J. M.**, Acting Assistant Surgeon. Granted thirty days' extension of annual leave on account of sickness, from January 1, 1913. **Kerr, J. W.**, Assistant Surgeon General. Directed to proceed to New York, N. Y., and such other places in the State as may be necessary for conference with the Public Health Commission of the State of New York regarding the necessary revision of laws and regulations affecting the public health. **Lumsden, L. L.**, Surgeon. Detailed to attend the annual meeting of the Indiana Sanitary and Water Supply Association at Indianapolis, Ind., February 25th and 26th. **Markoe, W. W.**, Acting Assistant Surgeon. Granted thirty days' extension of annual leave, on account of sickness, from January 1, 1913, and thirty-days' annual leave from February 1, 1913. **Oakley, J. H.**, Surgeon. Directed to proceed to Philadelphia, Pa., and take charge of the station during the temporary absence of Surgeon W. G. Stimpson on leave of absence. **Ransom, S. A.**, Acting Assistant Surgeon. Granted thirty days' leave of absence, to be taken during the calendar year, after February 1, 1913, at such times as the interests of the Service will permit.

Commission for the determination of a standard of purity for drinking water for use on common carriers in interstate traffic: Detail for the commission: Surgeon J. F. Anderson, chairman; Passed Assistant Surgeons A. J. McLaughlin and W. H. Frost, and Professor E. C. Franklin, members. The following named gentlemen have been invited to become members of commission and have indicated their acceptance of the invitation: Professors William T. Sedgwick, M. J. Rosenau, George M. Whipple, Edward Bartow, F. F. Westbrook, Edwin O. Jordan, Charles Gilman Hyde, W. H. Park, C. C. Bass, Dr. Henry Hansen and Dr. S. J. Crumbine. The labors of the commission will be conducted by correspondence.

Casualty.

Surgeon Henry Downes Geddings was born in Charleston, S. C., June 27, 1859, and graduated from the Medical College of the State of South Carolina, Charleston, in 1880. He was appointed an assistant surgeon August 18, 1888, a passed assistant surgeon September 2, 1892, and commissioned a surgeon February 12, 1904. His first service was during the yellow fever epidemic in the State of Florida in 1888, when he was on duty at Camp Perry, near Jacksonville, August 19, 1888, under Surgeon W. H. H. Hutton of the Service. He served at various marine hospitals and quarantine stations of the Service, and on February 12, 1897, was detailed by the President as technical delegate to the International Sanitary Conference, which met at Venice, Italy; and on April 7, 1897, represented the Service at the Twelfth International Congress in Moscow, Russia. He was detailed for duty in the Bureau June 3, 1899, and served as assistant surgeon gen-

eral to April 30, 1909. In June, 1909, he was detailed to attend the meeting of the International Commission for the revision of the international classification of diseases at Paris, and to the International Conference on Tuberculosis, Stockholm, Sweden. On June 17, 1909, he was detailed for duty in the office of the American Consul, at Naples, Italy, where he served until September, 1912. He died in Washington, D. C., on February 13, 1913.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending February 21, 1913:

Fauntleroy, P. C., Major, Medical Corps. Arrived in Washington, D. C., on February 14th, from duty observing the Balkan War. **Frick, E. B.**, Lieutenant Colonel, Medical Corps. Assigned to duty as an assistant to the chief surgeon of the Western Division, in addition to other duties. **Hathaway, L. M.**, Captain, Medical Corps. Returned to duty at the Presidio of Monterey on February 16th, from leave of absence. **Hill, E. C.**, Lieutenant, Medical Corps. From sick in quarters to duty on February 14th. **Jones, H. W.**, Captain, Medical Corps. Left Jackson Barracks, La., on February 19th, on leave of absence for ten days. **Kirkpatrick, T. J.**, Major, Medical Corps. Left Fort Adams, R. I., on February 18th, on leave of absence for twenty-one days. **Lincoln, H. F.**, First Lieutenant, Medical Reserve Corps. Left Fort Apache, Ariz., on February 7th, on leave of absence until the sailing of the transport for the Philippine Islands on April 5th. **Smith, W. H.**, Captain, Medical Corps. Left Fort Sheridan, Ill., on February 15th, accompanying troops to Fort Sill, Okla., and on February 18th left Fort Sill on ten days' leave of absence. **Truby, W. F.**, Major, Medical Corps. Assigned to duty as an assistant to the chief surgeon of the Western Division, in addition to his other duties.

Births, Marriages, and Deaths.

Married.

McDowell—Noyes.—In Washington, D. C., on Monday, February 17th, Passed Assistant Surgeon Ralph Walker McDowell, United States Navy, and Miss Ruth Noyes. **Meyerding—Stinchfield.**—In Rochester, Minn., on Wednesday, February 12th, Dr. Henry William Meyerding and Miss Laura Stinchfield.

Died.

Cheever.—In Portsmouth, N. H., on Saturday, February 15th, Dr. Benjamin Cheever, aged forty-three years. **Cohan.**—In Norwich, Conn., on Thursday, February 13th, Dr. Francis H. Cohan, aged forty-two years. **Derr.**—In Hagerstown, Md., on Wednesday, February 12th, Dr. Hamilton Kemp Derr, aged sixty-one years. **Ferry.**—In Poland, Ohio, on Friday, February 14th, Dr. Herbert Works Ferry, aged thirty-four years. **Gauthier.**—In Southbridge, Mass., on Tuesday, February 11th, Dr. Franklin C. Gauthier, aged eighty-eight years. **Lemen.**—In St. Louis, Mo., on Saturday, February 15th, Dr. Joseph R. Lemen, aged fifty-nine years. **Loving.**—In Pine Bluff, Ark., on Thursday, February 13th, Dr. Arthur B. Loving, aged sixty-eight years. **Mackay.**—In Chicago, on Tuesday, February 11th, Dr. Adam Mackay, aged sixty-three years. **Megrath.**—In Loudon, N. H., on Wednesday, February 12th, Dr. William A. Megrath, aged fifty-three years. **Page.**—In New York, on Wednesday, February 19th, Dr. Kingman B. Page, aged forty-nine years. **Potts.**—In San Francisco, Cal., on Sunday, February 9th, Dr. John S. Potts, aged seventy-two years. **Rauch.**—In Johnstown, Pa., on Tuesday, February 11th, Dr. Kim mel Rauch, aged forty-one years. **Steele.**—In Portsmouth, R. I., on Monday, February 17th, Dr. Minot A. Steele. **Wile.**—In Danbury, Conn., on Friday, February 21st, Dr. William Conrad Wile, aged sixty-five years. **Willits.**—In Bloomsburg, Pa., on Monday, February 10th, Dr. Charles Willits, aged fifty-six years. **Witter.**—In Wellsville, N. Y., on Wednesday, February 12th, Dr. George H. Witter, aged fifty-nine years.

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INFANT FEEDING.*

What is Believed and Taught Concerning It in Boston.

BY JOHN LOVETT MORSE, A. M., M. D.,

Boston,

Associate Professor of Pediatrics, Harvard Medical School; Associate Visiting Physician, Children's Hospital and Infants' Hospital.

It gives me great pleasure to have the opportunity to tell what we believe and teach in relation to infant feeding in Boston, because I, for one, feel that our teachings are misunderstood and therefore frequently misinterpreted. There is, obviously, a certain amount of difference of opinion among the Boston pediatricists as to minor points in infant feeding. They agree, however, on the main points, and I feel that what I shall say represents fairly the opinion there.

Breast milk. We believe that the natural food of the human infant is human milk, that nothing else can take its place, and that no other food can be made like it. All other foods are more or less unsatisfactory substitutes. We believe that it is the duty of every woman to nurse her own child, if she is able so to do. I personally believe this so strongly that I will not tell a mother how to feed her child artificially unless her reasons for not nursing it or for weaning it are satisfactory to me.

We are, nevertheless, sometimes accused of believing and teaching that modified cow's milk is better for babies than human milk. What is the basis of these accusations? Presumably that breast feeding, being the natural method of feeding, is easier to understand than artificial feeding and there is, therefore, less to be said about it. So much has to be said about artificial feeding to make it plain that both students and physicians are liable to forget what has been told them about breast feeding and, in spite of what has been taught them, to think first of artificial foods. I personally always give a student *zero* who, when asked "What is the best food for this baby?" does not say human milk.

We also believe that if a woman does not have enough milk for her baby, she should not wean it, but should give it what she has and help this out with a substitute food.

Wetnurses. Next to its own mother's milk, the milk of another woman is the most suitable food for a baby. Fortunately, it is possible to feed most

babies satisfactorily on some modification of cow's milk and rarely necessary to have recourse to a wetnurse. My own rule is, however, not only never to let a baby die, but never to let it get into a condition where I fear that it may die without compelling the parents to procure a wetnurse, if one is to be had. If they will not do so, I retire from the case. Fortunately, it is almost always easy, in Boston, to get a wetnurse at the Directory for Wetnurses established by Doctor Talbot.

Modified milk. We believe that the best substitute for human milk is some modification of cow's milk, that is, modified milk. The term, modified milk, is applied to any food of which milk, in any form, is the basis, no matter whether it is a simple dilution of whole milk with water or a mixture with whey, cereal waters, sugars, or what not. The term, modified milk, does not mean any special food.

Why is it necessary to modify milk? Nature provides a dilute food rich in fat and carbohydrates and relatively low in proteids, that is, rich in heat producing substances and relatively low in tissue building substances. It seems reasonable to suppose that this type of food is the one best suited for the infant's digestive power and metabolic processes. Cow's milk, while a dilute food, does not contain the different elements in the proportions natural for the infant and is, therefore, presumably utilized by the infant only with considerable economic waste. It seems more than probable, therefore, that babies will thrive better on milk modified in such a way that the natural relations of the food elements are approximately maintained. Our experience has shown us, moreover, that the average well baby does thrive better during the early months on modifications of cow's milk of this general character than on straight cow's milk or on simple dilutions of it. We believe, therefore, that this general principle should be followed in the feeding of well babies. We believe equally strongly, however, that it cannot be followed in the feeding of sick babies or of those whose tolerance for fat and sugar has been lowered by illness in the past.

The food elements in the milk of other animals whose milk can be procured in sufficient amounts to be considered in the feeding of infants, are in essentially the same relative proportions as in cow's milk. It is, therefore, necessary to modify them in some way to render them suitable for the average well infant. Since cow's milk can be procured anywhere, and in any amount, while the others are hard to procure and then in only limited amounts,

*Read before the Chicago Pediatric Society, December 17, 1912.

and all have to be modified, cow's milk is preferable to the others.

Raw and heated milk. We believe that it is of the utmost importance to have a pure, clean milk to start with and that it is impossible to feed a baby satisfactorily, no matter how the food is prepared, unless the milk used in the preparation of the food is of good quality. There is no evidence, either experimental or clinical, to prove that the pasteurization of milk at low temperatures produces any changes in the milk which render it less suitable as a food for infants or predispose to the development of the diseases of nutrition. In spite of this fact, I, for one, and I think the other pediatricists in Boston agree with me, still prefer to feed babies on pure, raw milk, if possible. This does not mean, however, that we do not most heartily believe in the pasteurization of milk when the supply is not above approach and when there is danger of bacterial infection.

The evidence in favor of the innocuousness of the boiling of milk is not so conclusive as in the case of pasteurization, but sufficiently so to make it far preferable to the use of unclean milk. In many cases it seems to prevent the formation of large casein curds in disturbance of the casein digestion.

Percentages. In Boston, we believe most thoroughly in the method of thinking and calculating the composition of infants' foods in percentages of the different elements contained in the food. We believe that it is the proper way to approach the subject and that better results can be obtained in this way than in any other. Feeding in percentages does not mean to us now, and never has meant to us, any system of feeding, understanding by the term "system" a set of hard and fast rules for feeding babies of different ages, although it has often been said to mean this by those who have never taken the trouble to find out what percentage feeding is. It is true that various tables, expressed in percentages of fat, sugar, and proteids, have been given to show what the authors of the tables have believed that average well babies of given ages will take and thrive on. These tables have been given merely to show that young babies need weak foods and that as they grow older the strength of the food must be increased. They are intended to serve merely as guides to beginners in the preparation of the first food for a well baby when it comes into their hands, and to show, in a general way, what the average well baby will take. They serve as guides in the same way as the statements made by those who criticise them that whole milk should be at first diluted with three parts of water, then with two parts, and so on. A man who is expert in the feeding of infants and who is able to analyze the symptoms and properly appreciate the history in the individual instance will never refer to one of these tables. The beginner may find it necessary to do so when he sees a baby for the first time. In any case, the first formula must always be something of an experiment. We believe that after this, the food should be so prepared as to meet the indications furnished by the symptoms, the findings in the stools, the appearance, and the weight chart in the individual case at a given time.

The fact that most of these tables show a relatively high proportion of fat and sugar with a relatively low percentage of proteids, has nothing to do with percentage feeding, but is merely a coincidence due to the fact that most of those who believe in calculating in percentages also believe, as already stated, that well babies do better, as a rule, on such a combination of the food elements. There is no further connection than this between percentage feeding and relatively low proteids. Another reason for the mistaken belief that percentage feeding and low proteid feeding are inseparable is, perhaps, that percentage feeding was developed at the time when it was believed that the proteids of cow's milk were the only cause of disturbances of digestion. That belief has been long since disproved. The principle of percentage feeding is, however, just as useful and just as important to-day as it ever was.

We believe that it is impossible successfully to feed babies artificially by rule, and that good results can be obtained only when the food is fitted to the requirements of the individual infant. We believe that feeding in percentages does more than any other method to prevent routine feeding and to encourage individualization in feeding, because it is impossible to think and calculate in percentages without knowing what food elements and how much of each one of them is being given. No one can decide these points as to the food without having some reason for his decision.

We believe that it is important not only to determine what food elements and what amounts of these elements are to be used, but of equal importance to know that these elements are present in approximately the desired proportions in the food when it is prepared. We believe that this result can be more easily and more certainly attained by calculating in percentages than in any other way. We believe that accuracy is as important in the calculation and writing of a prescription for a baby's food as in that for a medicine. We do not believe that as accurate results are obtained in any other way as by the percentage method. We do not wish any one to suppose, however, that we believe that the mixtures when prepared contain exactly the percentages of the food elements ordered. This would be an impossibility. We do believe, however, that the percentages are approximately correct and nearly enough so for practical purposes. In any event, the relative proportions of the various food elements are correct, even if the exact percentages are not. If the food does not agree, changes in the percentages to meet the indications furnished by the symptoms will be accurate relatively to the original percentages, which is all that is necessary.

We do not believe that it is possible to feed all well babies on one food or all sick babies on another food, as so many writers tell us. We believe that it is necessary to fit the food to the baby, not the baby to the food, and that the elements of the food must be varied to suit the needs of the individual infant, whether sick or well. We also believe that if those who advocate the use of single, routine foods were in the habit of endeavoring to decide in each instance what the indications were for the various food elements and for the relative amounts

of each, they would find that the indications were not the same in all instances. We believe that the use of a routine food shows a lack of clear thinking, and that the more clearly a man thinks the less he is willing to use a routine food. We do not claim that thinking in percentages will make a man think clearly, but we do contend that a man cannot use percentages in feeding without thinking some, and that the more he thinks, the more he is likely to think.

It has been charged that the percentage method of feeding prevents those who use it from adopting new ideas in infant feeding and from taking advantage of the advances in the knowledge of the subject. This is distinctly not so. In the first place, it is not a routine method of feeding, and those who use it are of necessity compelled to give a reason for everything they do. They are, therefore, predisposed to be open minded and to adopt new methods, provided there is a reason for so adopting them. It is unquestionably most flexible and adaptable to all advances in our knowledge of the subject and to all variations in our point of view. The amount of any individual element in the food can be varied to suit the indications without changing the others. Any element may be left out or a new element may be added. Alkalies may be added or omitted. It may or may not be predigested. That is, the percentage method of feeding, so called, is merely a method of calculation and a means of attaining accuracy in the preparation of infants' foods. It neither presupposes or implies anything as to what should be in the food or why it should be there. These points must be determined in other ways.

It has been asserted that the knowledge of mathematics required in the calculation of the composition of the food in order to obtain the desired percentages of the different food elements is greater than the average physician possesses. We believe that this is distinctly not so, and that reasonably accurate results can be obtained by anyone with a rudimentary knowledge of arithmetic. The knowledge required to determine what food elements and how much of them the individual baby needs may be beyond the knowledge of certain physicians. This fact, however, has nothing to do with the percentage method of calculation and is no reflection upon it. The reflection is upon the physicians.

Many have apparently identified the percentage method of calculation with the preparation of foods at the milk laboratory. There is no connection between the two. The explanation of the mistaken idea that there is a connection is presumably due to the fact that Doctor Rotch, who is one of the firmest believers in the percentage method of calculation, was the founder of the milk laboratories. There is no doubt, however, that the milk laboratory, by its accuracy in the preparation of food, carries out the essential idea of accuracy in the method of percentage feeding.

We are not in any way bound to milk laboratories or to any especial milk laboratory. We believe that, if the work of the laboratory is done as it should be done, food may be prepared more accurately at a laboratory than in the home. Believing that accuracy is an important element in infant

feeding, we heartily approve of the milk laboratory. We also realize that in the majority of cases extreme accuracy is not essential and that the reasonable accuracy which can be attained in the home is satisfactory for all practical purposes. We realize, too, that on account of expense, time, and distance, laboratory feeding is feasible for but a small minority.

It has been hinted, or at least we feel that it has been, that we, in Boston, are wedded to our idols, that we are back numbers, that we are ignorant of what is going on in infant feeding in the rest of this country and in Europe, and that, when we do know what is being done elsewhere, we are too well satisfied with ourselves and our methods to adopt, or even countenance any new methods. Naturally, we are not prepared to admit the truth of these allegations. We know that we are familiar with what the rest of the world is doing, and we believe that we are open minded and most ready to adopt anything that is good, no matter where it originates. We are, however, sufficiently convinced of the correctness of our own methods to cling to them until it is proved to us that other methods are better than our own. We are not prepared to accept anyone's dictum simply because he lives at a distance, not even if he writes in another language. He must either show us conclusively that he is right or we must be allowed to prove it for ourselves before we will believe it. Then we are not only ready but eager to adopt and make use of it. Thus far we do not know of any advances in the science of infant feeding which shake in any way our confidence in the percentage method of feeding. In fact, all the advances which have been made have strengthened our belief, because they have demonstrated its flexibility and adaptability to progress. We include the new discoveries among our resources and calculate in percentages of the food elements, as before. We can calculate low percentages of fat and high percentages of proteids as easily and accurately as high percentages of fat and low percentages of proteids. It is no more difficult to calculate percentages of maltose than of lactose, or of precipitated casein than of total proteids. We believe that on account of our method of thinking and calculating in percentages of the different food elements we make better use of the recent discoveries in infant feeding than we otherwise should. Our training in fitting the food to the individual and to the indications in the special case teaches us to use our knowledge intelligently and not in a routine way. We can, therefore, take advantage of all the advances in the science of infant feeding without going to extremes and without discarding that which is good in the old methods. We believe that, while we may not rush forward as rapidly as some others, we slip backward much less frequently and that our rate of progress is, on the whole, quicker.

Calories. It is as irrational to speak of a system of caloric feeding as it is of a system of percentage feeding. Babies cannot be fed calories; they must be fed food which they can digest and utilize. We do not believe, therefore, in using calories as the basis of an infant's food. We do believe, however, that the estimation of the caloric

value of the infant's food is of great importance. The food should be prepared to meet the indications in the individual case and the caloric value then estimated in order to determine whether the caloric needs are being met or not. In this way both underfeeding and overfeeding can be avoided. That is, the estimation of the caloric value of the food serves as a check. It prevents us from starving a baby in our efforts to get a food to fit its digestive capacity, and from grossly overfeeding it in our efforts to make it gain. It must be remembered, however, that babies do not all require the same number of calories for each unit of weight. One baby will thrive on a quotient on which another baby will starve, while another will starve on a quotient which will cause digestive disturbances in a fourth. Here, as always, in infant feeding, the baby, not rules, must be followed. We believe, therefore, that when intelligently applied, the estimation of the caloric value of the food is of great assistance.

Among other things of which we have been accused is of grossly overfeeding babies. Certain writers have seemed to think that all Boston babies vomit profusely and show other signs of indigestion. This is not the case. Boston babies do well, and we are proud of them. The best guide as to whether a baby is overfed or not is the baby and not the caloric value of the food which it is taking. As a matter of fact, Boston babies now need and get about the same quotient of energy as other babies. I took the trouble at one time to calculate the number of calories in the food of a series of babies which I had fed before it was customary to estimate caloric values, and found that the quotient of energy corresponded to the present accepted average, showing that at that time also they were not overfed theoretically any more than they were practically.

Incidentally, it may be remarked that the percentage method of feeding renders the calculation of the caloric value of foods very simple and tends to develop accuracy in this as well as in all other directions.

Fats. We have been repeatedly accused of giving unduly large amounts of fats to babies, and many writers have apparently supposed that excessive fat feeding was an integral part of what they have called the "percentage system" of feeding. Since our critics have discovered that fats are not the cause of all the troubles of digestion, as they thought at one time, we have recently been criticized less than in the past. As I have already stated, we believe that the average well baby thrives better during the early months on foods in which the natural relations of the fat, sugar, and proteids are retained. I have already explained, too, that there is no connection between this belief and percentage feeding. We were familiar with the symptoms of fat indigestion long before the crusade against high fats reached this country from abroad, and no one who understood infant feeding ever gave or advocated giving more than four per cent. of fat in a mixture. We were aware that fat in the food could cause constipation as well as relaxation of the bowels before we knew how to recognize the soap stool. We do not deny that many babies were

given, and are now given, too much fat in their food. This is in part because of the belief that has been so long current that fat always acts as a laxative. It is due far more to the fact that the average physician does not appreciate that different creams contain different amounts of fat and that some milks are richer than others. This lack of appreciation is not due to lack of proper teaching or to bad example on the part of the pediatricians, but to the carelessness and ignorance of the physicians. This we are trying to correct by teaching them accuracy by means of the percentage system.

Sugars. We believe that under normal conditions lactose is preferable to maltose in the feeding of infants, and that there is no indication for the use of saccharose in the place of these sugars. The reasons for this belief are that lactose undergoes lactic acid fermentation, which is the normal one in the infant's intestine, more readily than the other sugars and that it is more suitable for the development and maintenance of the normal infantile intestinal flora than the other sugars. It favors especially the development of *Bacillus bifidus*, which is normally the predominant organism in the large intestine. We are doubtful whether the so called "sugar fever" really is caused by sugar and, if it is, do not feel that the fact that the rise of temperature occurs more often with lactose than with maltose counts against the use of lactose in the feeding of normal infants, because fever never occurs unless there is a diarrhea, which shows some lesion of the intestine. The fact that the assimilation limit of lactose is lower than that of maltose is of no importance, because this limit is at least three times as large as would ever be given in a properly modified milk.

We are convinced, however, that there is a kind of intestinal indigestion in infants which is due to the fermentation of milk sugar and believe that the dextrin-maltose mixtures are most useful in the treatment of this condition.

We are also convinced that in the acute diarrheas due to bacterial infection the sugar given should be determined by the nature of the infection. In the type caused by the gas bacillus and other organisms of its class large amounts of any sort of sugar are contraindicated, maltose being more harmful than lactose because it undergoes butyric acid fermentation more readily. This type of diarrhea yields most rapidly to treatment with lactic acid bacilli. The food must contain a moderate amount of lactose to furnish a proper medium for the development of the lactic acid organisms. In the type due to the dysentery bacillus and other organisms which produce toxic substances from protein, on the other hand, sugars are indicated, because, when there is an excess of readily fermentable carbohydrates in the food, the bacterial activity changes from the proteolytic to the fermentative type. Lactose is preferable to maltose for this purpose, chiefly because it is more slowly broken down and absorbed and consequently exerts a more prolonged action.

Starches. It has been evident for some years that the conception that young babies are unable to digest starch was erroneous. The last doubt has been removed by Hess's demonstration of the presence of a starch splitting enzyme in the duodenum of the

newborn. I believe that every one in Boston is theoretically convinced that there is no reason why starch should not form a part of an infant's food. Practically, however, some are still averse to giving it to a young infant. Personally, I see no reason why it should not be given to any infant, no matter what its age, if indicated. We do not believe in the routine addition of starch to the infant's food and do believe that the amount added should be calculated in percentages, the percentage added depending on the purpose desired. We rarely add starch in the early months for its food value, using it chiefly for its mechanical or colloidal action in preventing the formation of hard casein curds.

Proteids. We believe, as already stated several times, that the average well infant thrives better during the early months on mixtures containing relatively high percentages of fat and sugar and relatively low percentage of proteids. We know perfectly well that the old idea that the proteid was the only element in the cows' milk which caused trouble was erroneous and we, I think, give higher percentages of proteids, on the average, than we did some years ago. We feel, however, that, if the proteids are increased too much beyond the proteid needs, an unnecessary strain is thrown on the proteid metabolism and on the organs of excretion. We cannot believe that the proteids never do harm. We believe that there is a proteid indigestion in the same way that there is a fat and a sugar indigestion. We believe, too, that proteid indigestion is more often overlooked than the others because it is harder to recognize, and that, when its symptoms are better known, it will be found to occur far more frequently than many at present suppose. Therefore, we do not give the high percentages of proteids to young, well babies which are recommended by many others.

We believe, however, that, when there is a disturbance of the digestion of fat and sugar, it is of great advantage to raise the percentage of proteids in order to make up for some of the calories lost in the necessary reduction of the percentages of fat and sugar. We also believe that, when there is acid fermentation in the intestine, the change in the bacterial flora produced by the administration of a large amount of proteid is of great advantage. We are not sure whether casein in the form of precipitated casein is or is not more useful than the total proteids in the treatment of disturbances due to the fermentation of milk sugar, but are endeavoring to make up our minds on this point.

We believe most thoroughly that in certain types of indigestion, especially gastric, it is most advantageous to reduce the amount of casein and increase the amount of whey proteids, that is, we believe in the so called "split proteid" or whey mixtures. We are equally sure that there is a type, or types, of indigestion due to milk sugar, salts, or both, in which whey and whey mixtures are not only of no aid but distinctly harmful. They must, therefore, be used with discretion.

Salts. There is no question in our minds that a part, perhaps a considerable part, of the disturbances of digestion in infancy are due to improper amounts or improper proportions of the salts in the

food. We are not prepared to go as far as Schloss and attribute all the disturbances of digestion to this factor. We feel, too, that at present our knowledge concerning the salts, the part which they play in normal digestion and metabolism and the symptoms of the disturbances which they cause is so limited and incomplete that we can pay but little attention to them in the regulation of the diet, either in health or in disease.

Finally, we believe that it is wrong to think so much as is now the custom of the disturbances of digestion caused by single elements of the food. There can be no doubt that in many instances in which the disturbance appears to be due to a single element, the real trouble is in the relation of the different elements to each other. We feel that our knowledge of the connection of the disturbances of digestion with the various food elements is still extremely rudimentary and that we must be very careful not to accept each new item of information as the final solution of the problem.

Alkalies. We feel very uncertain as to the action of alkalies in infancy. We do not know whether to accept the views of Southworth and Van Slyke and Hart that they favor the rapid emptying of the stomach by delaying the coagulation of casein by rennin, that of Clark that they increase the flow of hydrochloric acid, that of Cowie and Lyon that they delay the pyloric opening reflex and consequently the evacuation of the stomach, or that of Stolte that their chief action is in the saponification of the fats. At present most of us are using them on the basis that they delay the action of rennin on casein and thus allow more or less of the milk to pass the pylorus before coagulation takes place, this being possible on the supposition that the pyloric opening and closing is less dependent on the reaction of the gastric contents, when these are entirely liquid. Acting on this conception we add the alkali in proportion to the casein, that is, to the cream and milk which contain the casein, in the mixture, and not in proportion to the total amount of the mixture. We use alkalies, therefore, in gastric and not in intestinal indigestion. Most of us do not add them to the food of well babies. We are not at all sure that we are doing right in pursuing this method and are prepared to change at any time when we are shown a better one. We feel that this is one of the matters which most urgently require further investigation.

Intervals between feedings. This is not the time or place to enter into a discussion as to the intervals of feeding. We are familiar with the experimental evidence as to the advisability of long intervals, but we do not feel that it is entirely convincing, because we believe that there are other elements in the problem which have not been considered. We are not at all convinced by the clinical evidence in favor of long intervals, because we can show equally good evidence in favor of short intervals. In general, I think, we begin with two hour intervals, but work to three hour intervals much more rapidly than in the past, while we do not often use the four hour intervals. While this is our usual practice, we have no set rules and vary the interval to suit the individual case. It goes without saying, or should, at all events, that the interval must vary with the

amount of food given at a feeding, the strength of the food and its composition, as well as with the digestive capacity and gastric motility of the individual infant. We feel very strongly that this is another matter regarding which the last word is far from having been said.

Classification of the diseases of the digestive tract in infancy. The matter which is perhaps troubling us most in Boston at present is how to classify the diseases of the digestive tract in infancy. A few years ago we were quite well satisfied with a classification which we had then evolved. The discoveries of the last few years have shown that this classification is wrong in many respects, so far wrong indeed, that it can hardly serve even as a basis for revision. None of the other classifications seem to us, however, any better. An entirely new one is necessary. It seems impossible to make a satisfactory one now, because, while the recent advances in our knowledge have compelled us to discard that which we formerly believed to be true, they are not definite enough to form a firm basis for a new classification. We are in a transition stage. That which is new and seems true to-day is likely to be disproved next year and that in turn displaced in the following year. Any classification which is made now can be regarded as nothing more than a makeshift and cannot be expected to withstand severe criticism.

We feel that there is a small and relatively unimportant class of cases in which the symptoms are not due primarily to disorders in the digestive tract, but are the result of causes acting indirectly through the nervous system. We believe that there is another large class of cases in which the primary cause lies in the food. The error may be an excess of a single food element, an excess of all the food elements or an improper relation of the elements. It seems wiser not to think of these disorders as gastric or intestinal, but as disturbances of digestion due to an excess of fat, sugar, or proteids, as the case may be, or to overfeeding. There can be but little doubt that disturbances of the digestive secretions and injuries to the walls of the digestive tract develop as the result of the abnormal chemical changes which take place in these conditions. What are the symptoms of these injuries to the digestive tract and how are we to recognize them? We are not sure that we know. I am sure, for one, that I do not know. We believe that bacteria play a greater part in the production of these injuries and of the symptoms than do many others, and feel confident that the bacterial side deserves at least as much consideration as the chemical. It is very difficult to prove this, however, and more difficult to determine what part of the injuries are chemical and what bacterial. We believe further that there is a very definite class of cases in which the cause is certainly bacterial, and that the disorders due to bacteria should be subdivided according to the etiological organisms. Furthermore, the treatment in this class of cases must be based on the bacteriological etiology. It hardly seems possible to go further than this at present. It is even more difficult to give names to these various diseases. I, for one, am not at present prepared to attempt it.

70 BAY STATE ROAD.

URETHRAL AND PERIURETHRAL LITHIASIS.*

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As in all other organs of the urogenital tract urethral and periurethral lithiasis rest on three general bases. The first factor is disturbances of the metabolism of urinary excretion by which the chemical reaction and specific gravity are occasionally without, but almost invariably with infection so changed that precipitation occurs of salts normally in solution. The second factor is disturbances in the hydraulics and physics of the act or urination through natural variations in the calibre of the urethra or through changes of disease, such as strictures, dilatations, old abscess cavities, fistulae, and the like, or through the deformities of anatomical abnormalities, such as diverticula or through the deformations of operations, each in its own way leading to arrest, retention, decomposition, and precipitation of the urine, with infection as the rule and without infection as the rare exception.

These two forms of disturbance might be called the primary pathology or pathogenesis of urethral lithiasis. While the results upon the tissues locally, after the stone has formed or become impacted, might well be termed the secondary pathology or sequels of urethral lithiasis. It will be the endeavor of this paper to adhere to these points of view.

The third general basis of urethral and periurethral lithiasis is of extraneous origin and comprises foreign bodies in the urethra, such as spicules of bone, shreds of dressings, pieces of stitches, fragments of wood, or surgical instruments, and other elements artificially introduced in the course of disease, surgical intervention, and unnatural practices. Such foreign matter becomes the nucleus of the calculus through the excitation of the two factors in the pathogenesis of stone just alluded to, with secondary precipitation of urinary salts upon this nucleus.

From the foregoing general bases it follows that urethral and periurethral calculi are either migratory with various degrees of impaction, or formative, otherwise called native—urethral stones, in the strict sense. Migratory concretions originate in renal, ureteral, and vesical pathogenesis through all the factors just laid down in the opening sentences of this paper to which is added migration of the stone from its seat of origin toward the outer world until arrested in the urethra at one of the natural narrowings in health, or at one of the pathologically altered points in disease.

The term encysted calculi is employed for stones in pockets and diverticula communicating with the urethra in either the anterior or posterior portion. Congenital diverticula of the anterior urethra usually occur between the glans and the scrotum, while acquired forms result from injury, such as rupture, cysts, scars, strictures, fistulae, and the like. Prostatic urethral diverticula are also either congenital or acquired. Remains of the urogenital sinus

*One of the contributions to the symposium on Lithiasis of the Urogenital Tract, at the open meeting of the Section in Genito-urinary Diseases of the New York Academy of Medicine, January 2, 1913.

constitute the congenital forms, while the acquired types are due to cysts, abscesses, etc., or, finally, to the secondary pathology of the stones themselves, leading to ulceration through the urethra and then to encystment. Some authorities maintain that these encysted stones have unusual and peculiar composition. Englisch,¹ in 100 specimens, found thirty-five per cent. of complex composition, twenty-seven per cent. phosphates, twenty-two per cent. urates, and sixteen per cent. oxalates.

In 1904, Englisch² collated notes of 400 cases and averaged the sites of impaction as follows: Membranous urethra, forty-two per cent; penile urethra, fifty-eight per cent.; distributed thus, naviculae fossa, 11.2 per cent.; pendulous portion, 14.5 per cent.; scrotal portion, 13.7 per cent., and bulbous portion, 18.6 per cent. Englisch omits the prostatic urethra, perhaps through inclusion of this anatomical part under the term membranous, otherwise we could not understand why that very short portion which we term membranous should receive forty-two per cent. of his statistical impactions, whereas in common experience it receives, strictly speaking, none, because if the membrane arrests a stone it will necessarily lie proximal to it in the prostatic urethra.

Native urethral calculi occur through local formation by infection and alteration of the urine, so that precipitation of its salts is determined commonly around inspissated mucus or other products of inflammation, and occurs through changes in the hydraulics of urination so that retention, decomposition, and precipitation are favored. Unusually large bulbs, dilatations behind strictures, fistulae, abscess cavities, and diverticula are the best types to mention of recesses favorable to such lithiasis.

From what has been said of the pathogenesis of urethral lithiasis it will be noted that such stones are also either endourethral, namely, originating in this canal itself, or periurethral, arising in tissues and organs physiologically or anatomically related with the urethra. Thus the prostate is the commonest source of such periurethral stones, and next, abscesses draining into the urethra, just as the kidneys, ureters, and bladder originate most migratory, endourethral calculi.

Strange as it may seem, urethral lithiasis affects child and adult alike. In children these stones are usually migratory, impacted, endourethral manifestations. In adults lithiasis may be endourethral, periurethral, migratory with impaction, or formative in origin. Likewise, the frequency in the adult of urethral disease permits a migratory, endourethral calculus with only moderate impaction and relative mobility to augment in a pouch made for itself by itself, set up inflammation and infection, and thus become a formative urethral stone which may, by ulceration, become finally a periurethral deposit.

The tendency of German authorities is to take the purely pathological viewpoint and classify urethral lithiasis into two groups: 1. The exourethral, which embraces those stones which arise from the upper urinary organs and from the prostate; and, 2. the endourethral calculi, including only those which strictly form within the cavity of

the urethra itself. It seems wiser, however, to subdivide these pathological entities from the more practical standpoint of treatment into those of the anterior and those of the posterior urethra. Essentially each such subdivision embraces the classification of the German authorities. Let us consider each of these classes in turn as they appear in children and adults.

In small children practically all urethral concretions are of intrauterine renal origin, migrating outward and impacted at one of the normal anatomical constrictions, namely, at the bulb, penoscrotal angle, and meatus. In adolescents and adults, if the urethra has not been infected, the same facts are true as in children, but inasmuch as a very large majority of adults have, or have had, urethral and periurethral disease, the impaction occurs in relation with the sequels of such disease. The number of stones in children is usually solitary, occasionally a few, whereas in adults the number varies from one or a few to a dozen and even a urethraful. The size of the stone decreases directly with the number, so that single large stones are the rarest and multiple small stones the commonest.

The results upon the urethra of the impaction of stones as the so called secondary pathology, have already been explained. Like the symptoms, they are determined by the absolute or relative obstruction of the stone. Thus it is that in a healthy urethra a partially obstructing stone sets up all the primary pathological conditions which, if preexistent, would have caused the stone and which, by persistence, augment the stone itself and its effects locally. In this manner a kind of cycle of vicious events is locally started and repeated.

The syndrome of lithiasis of the anterior urethra with impaction is in young children only objective and consists in outcries from pain and severe struggle, and strain to pass urine which is voided, if at all, only in drops. In adults, however, the cases fall into two groups: First, patients who give little history until the urethral obstruction suddenly appears; and, second, patients who present a logical and consecutive story of varying degrees and forms, separated by widely uncertain lapses of time; brief in some, longer in other individuals, of renal disorder, pain, pus, blood, ureteral colic during migration of the stone into the bladder, vesical irritation of its presence in the bladder, and finally the urethral obstruction, absolute or relative in degree. Sometimes such patients have noticed the passage of urinary sand and stones, too small to obstruct, on several or many previous occasions.

The immediate results of the obstruction provide the next syndrome of symptoms alike in character, but more severe in children than adults, namely, shock, anuria, retention of urine, distended and tender bladder, rupture of the urethra, and extravasation of urine, especially in children. These are variously related with absolute obstruction. Slight or partial obstruction may give few symptoms so that sometimes stones may be retained with little inconvenience for years. Pluyette³ and Jesjakow⁴ each report a case having retained calculi respectively fourteen and fifteen years. Inasmuch,

¹*Archiv für klinische Chirurgie*, lxxii, p. 487.

²*Ibidem*.

³Report actually made by Guinard, *Bulletins et mémoires de la Société de chirurgie*, xxvi, p. 892, 1900.

⁴*Centralblatt für Chirurgie*, xxv, p. 565, 1898.

however, as the degree of obstruction is rather high when not complete, dysuria, acute suppurative urethritis (distinguishable from gonococcic urethritis only bacteriologically), periurethritis with abscess formation, etc., rapidly ensue, more commonly in adults, because in children shock with total obstruction or anuria usually spells death for the patient.

Physical examination in anterior urethral lithiasis presents to inspection the stone lying at the meatus, or as a swelling at any point along the urethra, with or without signs of abscess; and to palpation, a hard mass, immobile or mobile, with crepitus if the stones are multiple, and with the stricture distal to the stone or with fluctuation if an abscess is present. Instrumental examination includes the use of a large *bougie à boule* to define the obstruction, a small one, or a sound, to pass through it and touch the stone, and requires the urethroscope and x ray to verify these findings. Stones in diverticula may permit instrumentation without results altogether unless the stone is pressed toward the urethra in order to make contact with the examining sound.

I have had no personal observations of impacted urethral calculi in children, but have found in literature the subjoined case reports. I have endeavored to collect an illustrating and interesting series of cases in literature for both children and adults. It will be found that they are not complete in many instances, from necessity and from circumstances over which the contributors quoted doubtless had no control, but let it be known that omission from my paper of such scientific details in these citations from literature as uranalysis, urethroscopy, cystoscopy, radioscopy, and autopsy is due to their absence in part or whole from the originals.

In many instances the diagnosis and other knowledge of the case is quite complete without such an array of scientific data. On the other hand, as a matter of comparison and study it is to be regretted that such hiatuses are very frequent.

Advances in the diagnosis of lithiasis of the kidney, ureter, and bladder will henceforward make the occurrence of endourethral stones with impaction more and more rare, so that in medical centres they may almost entirely pass out of common experience. Endourethral and exourethral stones by formation, however, will be met with from time to time. It is for these reasons that illustrative cases in literature are not easy to meet, if due respect is had for careful selection.

Dugan,⁵ probably before the Kentucky State Medical Association, notes four interesting examples of stone impacted in the urethra, with rupture and extravasation of urine in very young male infants—one four days old, one eight days, one a month old. The other two cases were in the same child, who was eighteen months old. He operated upon all four patients, doing five operations. The first two, almost newly born infants, died—one from the rupture of the urethra and extravasation of urine, the other from the operation or infection. No autopsies are described.

CASE I. Infant aged four days, normal at birth. Night of third day was seen to be straining. The following morning the penis and scrotum were swollen. The doctor

was called and made diagnosis of ruptured urethra. Perineal section for stone, escape of urine. Flat, scalelike calculus the size of a grain of rice was found. Drainage; no sloughing; kidneys acted well; death in coma.

CASE II. Infant aged eight days, normal at birth. History same as in Case I. Rupture of urethra, which became infected. Incision made in perineum; escape of urine; stone extracted from penile portion; suppuration; death from shock or infection.

CASE III. Infant aged one month, stone recognized by palpation in penile urethra just in front of bulb; could not be moved; urethrotomy; recovery.

CASE IV. Infant aged eighteen months, dysuria and greatly distended bladder. Fever; stone felt in deep urethra; incision, with much difficulty in removal; uric acid with phosphate outside; perineal wound left open. Sound passed for some time to present traumatic stricture. Eight months later the same symptoms reappeared from presence of a new stone which was larger than the first and seated in the prostatic urethra. Removed with a scoop after perineal incision. As there were no evidences of infection the wound was closed.

The composition of urethral stones in childhood Dugan dismisses by saying that they consist of uric acid. They sometimes have a phosphatic exterior when the bladder is infected as in Case IV just described. There is no mention of radiographs or uranalyses in his case reports.

Wathen, in discussion of Dugan's cases, noted four operations on the same patient: first at thirty months for stone in bladder and urethra. A fistula existed for some years. When twelve years old this child had a calculus removed from the perineum, which began apparently in an old fistulous tract. A third operation for stone in the perineum was necessary many years later, and one year later stones were removed from the membranous urethra and bladder. He is now about forty years of age, and the x ray shows no stones anywhere.

Willmoth also reported a stone in the urethra of a baby, aged five days, large and impacted, two inches back of the meatus. The stone was split and extracted with mosquito forceps. The stone was three times the size of a cherry stone.

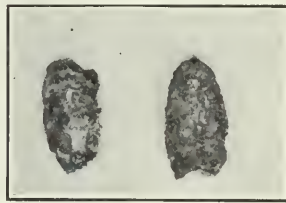


FIG. 1.—Impacted urethral calculus, external urethrotomy. Weight, 0.93 gramme. Composition, chiefly oxalate of lime, little uric acid.

I had a very interesting case of anterior urethral lithiasis with impaction in a Chinaman, who came to the genito-urinary clinic at the House of Relief, March 27, 1906, with an interpreter who spoke English imperfectly. This limitation may have been the reason why we could not obtain a history of renal colic, pyuria, hematuria, and other details going with lithiasis in the upper urinary organs, but only a history of sudden and almost absolute urethral obstruction. The diagnosis was easy by external palpation of the body of the stone which could be distinguished, but not separated, from a stricture in front of it against which a *bougie à boule* of full size lodged and through which one of small size passed and grated on the stone. Admission to the hospital was declined. A small opening was made down to the stone, which was delivered by gentle pressure. Congestion of the mucous membrane, however, from the irritation of the stone caused hemic oozing, so that he finally consented to stay in the hospital over night. The in-

⁵Kentucky Medical Journal, ix, p. 523, 1911.

cision healed quickly and without sinus and the stricture was dilated. Unfortunately, urethroscopy and cystoscopy and radiography were refused. The patient ceased treatment with a free stream of clear urine. Many months later the man, with gratitude, celestial in more senses than one, hunted me up and presented me with a very beautiful tea set, which is in fragrant contrast with the ingratitude of the average hospital patient.

The literature contains the following very instructive case reports:

Abel⁶ in commenting upon Dugan's contribution noted two cases in adults in which he crushed the stones with alligator forceps.

Peak, at the same meeting, reported a stone 1.5 inch long, funnel shaped, seated in both urethra and bladder from a patient suffering from multiple strictures of the urethra and the subject of several operations including suprapubic cystotomy.

Adrian⁷ reports a case as follows: Patient, aged thirty-four years, never had gonorrhea, was married, potent, never ill, and had no history of trauma of perineum. Drank somewhat. Three years before had left sided renal colic, never repeated. Later difficulties in urination—twice complete retention (thirteen and ten hours). Spontaneous rectification. Much trouble subsequently, as if there were an obstacle in the urethra. One physician diagnosed stricture. For six weeks past had been able to feel some object in the urethra which had increased in size. Object hard, round, and could be moved a few cm. For three months, in order to urinate, the patient had had to push back the object. On examination, the author felt the latter behind the scrotum, freely movable. The sound impinged against the object but gave no information. It was not thought wise to try to force it into the bladder. Endoscope showed a whitish gray object of smooth contour. Operation: Urethra dilated with Kollman-Oberlander instrument and with the latter in position the stone was forced forward through the length of the urethra, but could not be extracted until after meatotomy. Complete recovery from all symptoms including glycosuria. The specimen was 2.2 cm. long and 3.8 cm. around, had a urate of sodium kernel, a secondary deposit, and a tertiary deposit of calcium phosphate. It lay in the dilated bulb and was clearly of renal origin whence it migrated to the bladder and thence to the bulbous urethra in which mobility had permitted concentric instead of eccentric secondary tertiary layers as is the rule in most urethral calculi by impaction.

Gérard⁸ describes six cases of anterior urethral lithiasis with impaction, summed up as follows: Five had a single stone, one multiple concretions occupying both anterior and posterior urethra, and only one a specimen of noteworthy size. All six were migratory, had sojourned for some time in the bladder; two were urates with clear urine, three were phosphatic with infected urine, and one patient had renal tuberculosis. Stricture was a conspicuous factor, both physiologically and pathologically, preventing spontaneous expulsion. The urate stones gave sudden pronounced symptoms without antecedents, the phosphatic calculi involved symptoms of the primary urinary infection and less definite symptoms of obstruction.

Hayden⁹ reports five cases of lithiasis of the anterior urethra with impaction:

CASE I. Patient, aged thirty-eight years, was admitted for painful urination; had never had urethritis. History of renal colic (left) recurrent. About ten weeks previously a stone from the kidney seemed to pass into the bladder which expelled it some days later. No stricture. Olivary bougie touched a rough object in bulbous urethra which could also be felt from without. External urethrotomy with removal of a fifteen grain stone from the bulb. Stone probably from kidney, impacted later in bulb. X ray had been negative.

CASE II. Patient, aged forty-five years, admitted for painful and difficult urination. No history of renal colic.

Urethritis in youth, "never fully cured." Had had both external and internal urethrotomy when in his twenties for relief from strictures. Five years ago litholapaxy under ether. Urinary troubles had been present constantly. Endoscope now showed a large stone in bulb with a tight stricture. External urethrotomy; stricture cut; stone of twenty-six grains extracted. Condition readily explained; a fragment of stone remained in the bladder after the stone crushing. Passing into the urethra this lodged behind the stricture.

CASE III. Patient, aged forty-five years; urethritis in youth and urinary troubles ever since. No history of colic. Endoscope showed stricture 4 inches from meatus and back of this a stone which also could be felt from without. External urethrotomy, stricture cut, and stone (49 grains) removed.

CASE IV. Patient, aged sixty-three years. No history of colic. Urethritis in youth and urinary troubles since. Stricture two inches from meatus and another at bulbo-membranous junction. Behind the latter a rough body palpable through perineum. External urethrotomy.

CASE V. Patient, aged sixty-three years. Neither renal colic nor gonorrhea; troubles of short duration only. Four hard objects in pendulous urethra. Urethra anesthetized and stones removed with urethral scoop and manipulation; infected bladder cured. Source of stones obscure.

CASE VI. Patient, aged fifty years, gave history of colic but none of urethritis. Had just undergone a paroxysm of colic, followed by retention. Sound encountered a rough body in prostatic urethra. External urethrotomy; two stones removed with difficulty; escaped from the kidney they had been grasped by the prostate in attempts to expel urine.

The third general basis of lithiasis in the urethra was in this paper previously described as of extraneous origin and as of foreign bodies for nuclei. The following two cases in literature are of great interest, in that they concern anterior urethral cases:

Morton¹⁰ reports the case of a man, forty-eight years old, perineal sinus. Probe encountered stone in urethra. Twenty-six years before he had had an attack of retention and introduced into his urethra a homemade wooden sound which broke off inside. He then got a metal catheter No. 4 and used it, knowing there was a piece of wood in the passage. His catheter struck an impediment which he took to be the piece of wood, but which in reality was a stone. At last an abscess formed and opened in the perineum. Pus and urine escaped. The author operated and found a large stone in a self-made urethral pouch. The fragment of wood had served as a nucleus for the stone.

Adrian¹¹ notes another case with a fragment of bone as nucleus in a man, fifty years old, once the victim of abscess in the sacrogluteal region with evidence of bone exfoliation. Vesical calculi with bone nuclei are common. Adrian removed this specimen by external urethrotomy. Caries of the tuber ischium was shown to have been the source of the abscess from which the spicule must have burrowed into the bladder and migrated into the urethra or it may have lodged in the periurethral tissues first and then have ulcerated into the canal. The stone when removed was the size of a cherry pit and occupied the bulbar sinus as in Case I (report of Adrian above). The shape of the stone corresponded behind that of the sinus, while in front it projected into the urethra as a pointed segment. The mineral portion was phosphate of calcium and magnesium.

Lithiasis of the posterior urethra, like that of the anterior urethra, involves impaction and formation as the two main causes and endourethral and periurethral sites as the chief locations, and affects children very rarely, but adolescents, adults, and the aged much more commonly as the sequel of antecedent disease processes. Its products may also be endourethral and exourethral calculi, exactly as in the case of lithiasis of the anterior urethra. The exourethral manifestations are almost

⁶Kentucky Medical Journal, ix, p. 523, 1911.

⁷Zeitschrift für Urologie, iv, p. 481, 1910.

⁸Echo médical du Nord, xv, p. 600, 1911.

⁹Transactions of American Association of Genitourinary Surgeons, iv, 13, 1909.

¹⁰Bristol Medical-Chirurgical Journal, xxviii, 127, 1910.

¹¹Ibidem.

invariably due to disease in the prostate or to operations upon this gland.

Endourethral calculi of the posterior urethra are strictly those of the prostatic urethra, as the membranous portion may obstruct, but does not harbor these concretions, which are almost always migratory with impaction in the normal urethra, but formative in the anatomically abnormal or pathologically deformed channel. They are, therefore, subdivisible into free, diverticular, and urethrovesical calculi, any and all of which may be solitary or multiple.

Free endourethral calculi of the prostatic urethra are most common; lie loose in the dilated urethra; are, as a rule, small and multiple, in apposition, and faceted, the greater the number the smaller the size and vice versa, and have weighed from 200 to 300 grains. These calculi have descended from the bladder and have conserved their mobility. In front, the membranous portion arrests them. Between this and the neck of the bladder they accumulate, the prostate undergoing dilatation. A sort of gutter for the passage of urine may be present.

Diverticular endourethral calculus of the prostatic urethra is more rare, the calculus being inclosed in a urethral diverticle, appearing in the endoscope as part of the urethral wall, the rest being hidden in the prostatic tissue, and possibly having the shape of a gourd. These stones have either lodged in a natural diverticle or have formed a cavity for themselves, in which case they might be also regarded as periurethral. As they increase in size they tend to project into the lumen.

Urethrovesical calculi in certain cases may lie in both the urethra and bladder and project into the latter. There may be a groove or a constriction which corresponds to the neck of the bladder and gives to the calculus an hourglass shape. It cannot be said whether these stones originate in the urethra or bladder. They cause various disorders of urination.

The symptoms of lithiasis of the posterior urethra of endourethral type may, as in the anterior portion, be very slight owing to tolerance of the normal canal, and give a negative or a doubtful history of the impaction of the stone. Another group of cases with a similar history present themselves with a chronic abscess and fistula at the bottom of which a probe will meet the stone. The largest number of patients, however, give a more or less definite history of recurrent or chronic and relapsing urinary disorder, punctuated with attacks of pyuria and hematuria, ureteral spasm, vesical irritation, etc. Then comes a crisis which commonly marks the passage of the stone from the bladder and its arrest in the prostatic urethra, soon followed by dysuria, infection, prostatic pain, and pain on defecation. A purulent, urethral discharge is an important feature, requiring bacteriological investigation to distinguish it from gonococcal invasion. Physical examination involves the use of the sound, urethroscope, cystoscope, rectal examination, bimanual examination with the sound in the urethra, etc. In these cases the condition of the prostate varies from congestive engorgement, due to infection, generalized, or focalized as an abscess,

to absolute enlargement of chronic inflammation and later atrophy. If the stone has resided long enough to ulcerate by pressure into the prostatic substance the gland may be much thinned to a mere abscess wall and the calculus passes into the periurethral class. Radiography is of more value in vesicoprostatic stone and periurethral stone, as the solitary endourethral concretions are apt to escape detection. Crepitus is present only with multiple calculi or when the condition is complicated with incrustations of the urethral wall.

The following more or less unique cases of endourethral lithiasis of the prostatic urethra are worthy of note. Muller¹² describes two:

CASE I. Patient, aged thirty-seven years. Urinary troubles for six weeks. Imperative desire to urinate, painful urination, etc. *Bougie à boule* showed stricture and back of it a sensation of calculus. Perineal incision; stone size of large hazelnut in prostatic urethra; recovery uneventful.

CASE II. Patient, aged eighteen years, history similar to that of foregoing case. Had gonorrhea two years before and urinary troubles ever since. *Bougie à boule* revealed stricture and back of it an obstruction thought at first to be stone, but later a second stricture of the prostatic urethra. Operation for relief of latter, the urethra being split to the prostate. Stone found imbedded at the neck of the bladder.

Spittel¹³ reports a case, of a man, aged twenty years, with frequent micturition, scalding, and sense of "scraping" extending from anus to meatus; stream thin, weak and turbid from phosphates; could urinate well in lateral decubitus; some dribbling between urinations; bladder not distended; rectal examination gave crepitus, due to friction of two stones in prostatic region; confirmed on sounding. A third stone on the bladder. Suprapubic cystotomy and removal of the three stones, one from the bladder and two from prostatic urethra. The latter were drawn backward into the bladder; they were faceted so that their surfaces corresponded, and were composed of phosphates and carbonate of lime. Spittel believes that these stones had formed primarily in the prostate. The phosphaturia preceded the calculus formation and was evidently due in some manner to jail life, the patient having served a year's sentence, with hard labor, limited to certain dietetic articles only, and had suffered flogging, etc.

One might comment on this case by saying that calculi do not pass from the urethra into the bladder except by artificial means.

Pepper¹⁴ reports the case of a Maine lumberman, aged twenty-three years, with severe pain in scrotum. Mass therein had been slowly enlarging. Right testicle had been removed in childhood—reason unknown. Dribbling of urine so that he wore a urinal; hernia excluded and an abscess diagnosed. Needle drew off pus; cut down on abscess and introduced finger; could then feel urethra and a hard mass therein, regarded as a calculus; urethra incised and large stone extracted, 1.5 inch long and 0.75 inch thick. Retention catheter left in. Capacity of bladder small.

Periurethral lithiasis of the posterior urethra embraces two common forms, viz., calculi of the prostate itself, and calculi of the periurethral tissues after injury and operation. The cause of these stones is commonly formative after infection, either by initial deposit or by increase in the size of a stone which has ulcerated out of the urethra after impaction. True¹⁵ prostatic concretions are multiple. Cameron reports 300, Paulicki¹⁶ 240. In com-

¹²Lyon médical, cxvii, 788, 1911.

¹³British Medical Journal, 1912, i, 8.

¹⁴New England Medical Monthly, xxix, 385, 1910.

¹⁵Glasgow Medical Journal, vi, 273, 1874.

¹⁶Wiener medizinische Wochenschrift, xviii, 1368, 1868.

position they are usually calcium phosphate or calcium carbonate about albuminous nuclei. They are frequently not suspected until met during prostatectomy, having determined few antecedent symptoms, or they may be associated with chronic prostatitis. The laminated prostatic corpuscles, corpora amylacea, etc., may, by apposition of a few dozen, become large concretions, of pea size for example, in color milky white, yellowish, or dark brown, of fatty lustre, translucent periphery, and brittle consistence. They may lie in the acini and excretory ducts in numbers of one hundred or more, migrate thence into the prostatic urethra, and be found about the colliculus. They appear at any period of life, but are most common in the prostates of old age. Through infection they may be covered with crusts of the lime salts and thus become true calculi of essentially prostatic origin, as distinguished from endourethral stones which may ulcerate into the prostate. The lime salts deposited are mostly basic phosphates, carbonates, triple phosphates, and sometimes oxalates, and change the appearance and consistence of these bodies so that they are hard and no longer translucent, white, brownish, or yellowish. On cross section they have a radiate striation. If single they may reach even the size of a hen's egg or be very numerous, small, and faceted. The prostate as a whole or in part may be involved or multiple stones may be individually encysted or occupy a common cavity.

Radiography seems to reveal two types, one diffuse and of hemp seed size, common in old age. The other shows the stones crowded together on both sides of the median line and appears at any period of life.

It is well recognized by all authorities that these concretions cause chronic prostatitis with destruction of the secreting portion, cyst formation, and atrophy, until only a thin wall of glandular structure or the capsule alone remains, or with abscess and sinus formation at any point.

The symptoms of true prostatic lithiasis may be insignificant and pass unnoticed during life. On the other hand, large, solitary, or multiple calculi with prostatitis may provoke such pronounced symptoms as difficult, painful, and frequent urination, pain in perineum, prostate, and rectum radiating down the penis and thigh, obstipation and painful defecation, purulent urethral discharge. Rupture of the stone into the prostatic urethra shows itself as acute posterior urethritis or as acute retention, through the size of the stone or swelling of the mucosa. If small, the stone may escape with the urine. Abscess and external fistulae may result.

The diagnosis of true prostatic calculi may be easy by palpation through the rectum if the stone is large and the prostate atrophic, or if the gland is nodular through multiple calculi, which may also add crepitation. Or the diagnosis may be extremely difficult if the stones are small, centrally located, and individually encysted. The sound will detect any which project into the urethra or will aid as a means of bimanual examination, a procedure which should never be omitted. The acoustic explorer, designed by Poncet, the urethroscope, and cystoscope are very important. Radiography is also of

use where other methods may not have been especially satisfactory.

I had the following interesting case of true multiple intraprostatic lithiasis, without operation, of

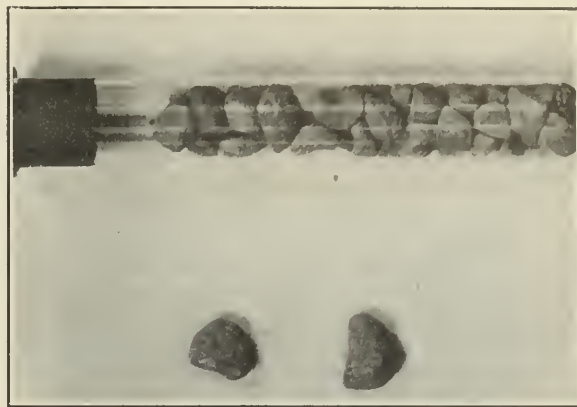


FIG. 2.—Prostatic calculi, voluntarily voided. Weight, 7.36 grammes. Composition, uric acid and urate salts. Specimen one fourth of whole.

which the notes are incomplete, because urethroscopy, cystoscopy, radiography, and other methods of examination were refused. The patient was a pensioner of Sailors' Snug Harbor, robust, florid, and jolly, with an enlarged, somewhat irregular prostate according to rectal palpation and pyuria, but hardly any urethral discharge. He brought a boxful of small stones, representing what he thought to be a fourth part of the total he had voided. They commonly appeared during urination, especially in the midst of exertion, such as swimming or defecation. The first stone he passed appeared during urination in the water while swimming and was accompanied by pain as it travelled to the meatus, where it lodged, almost blocking the stream entirely and whence he fished it with thumb and forefinger after retiring to a dressing room. He either pressed them from the urethra with the hand or fished them out with the fingers. He seemed to attach little importance to them as his manner of carrying the specimen and his indifference to medical examination and treatment show. Fig. 2 shows this collection of calculi very well indeed.

Jeanbrau¹⁷ gives a case report of a patient troubled for six years previously with incontinence and difficult urination. Benefited at the time by irrigation of bladder. Troubles recurred from time to time. When seen by author symptoms first suggested old urinary tuberculosis. Vesical capacity was small and cystoscope could not be used; prostate small and hard; testicles healthy; no tubercle bacilli; no history of gravel; no hematuria. Animal inoculation; while waiting for result was treated for tuberculosis. In the meantime sounding chanced to detect calculi in prostatic urethra. Perineal section; no stone palpable in urethra; prostate split and stone found size of a hazelnut, lying "like a stone in a fruit"; recovery uneventful; no statement as to source of nature of stone; urine was alkaline, with large amount of mucus.

J. Lynn Thomas¹⁸ gives descriptions of three cases:

CASE I. Man, sixty-three years old, had for prostatic calculi and a rectourethral fistula. Had had an obstruction for twenty years and used catheters. For months had been passing fecal matter in the urine. Prostate en-

¹⁷Montpellier médical, xxxii, 303, 1911.

¹⁸American Journal of Urology, v, 224, 1909.

larged and tender; a No. 6 sound could enter the bladder. Suprapubic cystotomy; vesicourethral opening found contracted and rigid; incised and the finger introduced, thus entering a prostatic pouch filled with calculi; cavity infected so that author made a counter opening and expelled 101 stones through one or the other avenue; one drain through both openings. Rapid recovery.

CASE II. Man, aged sixty-two years. Urinary disorders for twelve years. Used catheter at times. Diagnosis had been enlarged prostate with septic cystitis. Suprapubic cystotomy; a stone extracted from the bladder; finger in rectum found enlarged prostate; inspection of bladder showed a sacculation between bladder and rectum containing a stone to extract which it was necessary to open the prostatic urethra, whereupon eight small faceted calculi were found.

CASE III. Spiculated calculus imbedded in the prostate. This was accidentally discovered in the course of an exploratory suprapubic cystotomy. The prostatic urethra was dilated with the finger and the stone recognized and removed; perineal drainage; recovery.

Lund¹⁹ gives an account of two interesting cases:

CASE I. Man, aged sixty-nine years, had had frequent micturition for years; prostate per rectum found to be the seat of a hard nodular formation; bladder slightly trabeculated; no cystitis; diagnosis "malignant prostate." Prostate enucleated through median perineal incision; many little black concretions seen; in certain cases these stones caused irritation and abscesses.

CASE II. Man, aged sixty-five years, had had for years frequent, urgent micturition, with recent attacks of retention. An enlarged, smooth prostate was discovered per rectum, enucleated, and found to contain numerous prostatic stones of reddish hue. The presence of these stones apparently caused an edematous swelling (the organ was actually small). The prostate was inflamed and a small abscess had formed. The calculi lay in part free in the urethra, but were also distributed throughout the prostatic gland and ducts.

Dugan²⁰ presented a collection of seventy-nine stones all from the prostate of an old man. The gland had been transformed into a pouch. Two physicians had examined the patient very carefully, under ether, and had decided that calculi were absent. The sound should have been passed and then with the finger in the rectum presence of the stones would have been recognized. The man, already in a coma, was operated on and death resulted in forty-eight hours.

Professor Pousson²¹ relates the following two cases of intraprostatic calculi:

CASE I. Male, fifty-two years old. Troubled for several years with frequent micturition, getting up several times nightly; urination painful with terminal hematuria; sense of weight and discomfort in perineum and anus, aggravated to pain during defecation; patient became very nervous, getting no relief. On examination the urine was found to be normal; olivary bougie No. 18 revealed two projections in the bulboperineal region; no membranous spasm; on rectal touch there could be felt a little to the left of the middle line two small indurations included by the parenchyma. There was no protuberance. Pressure with the finger caused much pain. Diagnosis of intraprostatic calculi. Perineal incision and division of prostatic tissue disclosed two whitish concretions each as large as a large pea, very irregular in shape and bristling with sharp points. They were dry and friable, went to dust upon compression between the thumb and finger and were composed entirely of calcium phosphate.

CASE II. Man, fifty-four years old. Diagnosis had been made of probable vesicoprostatic tuberculosis; pyuria; on the other hand his general condition was excellent. No. 20 olivary bougie passed easily, causing no pain. Capacity of bladder not diminished. Rectal touch perceived two nodules, very sensitive to pressure. The author sought to scratch possible concretions with his finger nail and obtained the desired sensation. His diagnosis, therefore, was intraprostatic calculi. As the bladder was already infected suprapubic cystotomy was performed; bladder free from stone; a few ulcers in the trigonum were curetted and cauterized with the red hot iron; posterior urethra incised and

concretions found and extracted with difficulty; bladder drained with Guyon-Perrier tubes; the wound became infected and a retention catheter caused orchitis. Ultimate complete recovery. The calculi were similar to those reported in the first case.

The second class of periurethral lithiasis of the posterior urethra concerns deposits in deformities through anatomical abnormalities or operative procedures.

The following very significant case of lithiasis after prostatectomy focalized in the deep operative field is reported by Webb.²² Patient, aged sixty-eight years, seventeen years ago had undergone perineal prostatectomy (one of the first done in America, by the late Dr. Samuel Alexander). Was free from prostatic trouble for several years; symptoms then reappeared and continued; never used the catheter but wore a urinal all the time for the dribbling urine. When examined found to have infected urine and ascending nephritis; only a filiform bougie could enter the bladder at first; when a follower was passed a sensation appeared to indicate a stone in the bladder; radiography showed large oval mass, apparently in the latter. Rectal touch showed hard, insensitive mass in prostate. It was thought latter could not have been removed. Suprapubic cystotomy found the bladder empty. Seemingly a large indurated prostate was still present, in attempting to remove which it was found that the supposed gland was a mass of thirteen stones, the facets of which were adapted to one another. Stones were phosphatic, and were removed easily with relative recovery.

The relation between radiography and lithiasis of the anterior and posterior portions of the urethra has already been alluded to. It is a procedure not often employed on at least two grounds, first, because the diagnosis may be fixed without it, and, second, because competent radiography is so expensive in time and means that it is usually omitted when the case may be otherwise decided.

This subject is definitely brought out by the following case report from Pasteur.²³ Man, fifty-odd years old, consulted author who took a radiograph and got multiple spots in the pelvic oval; patient had had gravel and renal colic; radiographs at that time negative (save for possible ureteral shadow) as far as kidney was concerned; lower down certain shadows led to probable diagnosis of vesical calculi. The author, to confirm the diagnosis, passed an explorer and got friction in the posterior urethra, while the bladder was found empty. Diagnosis of prostatic calculi was made. The prostate was hypertrophic with residual urine in the bladder. Retention catheter worn and condition improved. By means of a large sound the prostatic stones were then forced into the bladder which, when filled with liquid, was able to expel them. Cystoscopy showed that nothing remained behind.

This case was one of extraprostatic stones which, having migrated from the bladder, were arrested in an enlarged prostate. As an example merely of this common occurrence the case would not be worth reporting. The point of interest is that the arrest of stones in a prostate, the seat of simple glandular hypertrophy, the indication might by some be regarded as perineal prostatectomy. In this particular case operation of any kind was refused. Could radiography have made the correct diagnosis? For this purpose the bladder would have to be cut out of the field by filling with bismuth, suspension, etc. On the other hand, as far as this case went, the exploring olive was amply sufficient. For exact diagnosis it is never well to reply too much on a single test, like radiography, to the exclusion of all others.

¹⁹Boston Medical and Surgical Journal, clxv, 170, 1911.

²⁰Ibidem.

²¹Association française d'urologie, xv, 725, 1911.

²²Journal of the American Medical Association, lvii, 2082, 1911.

²³Paris chirurgical, iii, 1036, 1911.

A shadow of stones in the posterior urethra and prostate would necessarily be more or less associated with the shadow of the symphysis pubis and perhaps at times difficult to distinguish from it.

TREATMENT.

The treatment of urethral and periurethral lithiasis is preventive and curative. Preventive measures imply the management of errors in general and urinary metabolism characterized by intestinal autointoxication, which almost invariably invites colon bacilluria, and by excess of crystals if not actual presence of gravel in the urine. Prevention also regards careful after treatment in any urogenital surgical condition, so that foci and pockets of precipitation may be properly dealt with.

Curative treatment acknowledges two classes of cases, those of emergency and those of election type. Emergency cases are characterized by acute, severe symptoms of obstruction, anuria, infection during a few days or even hours, and they naturally belong to childhood and old age. In other words, urethral lithiasis is another condition which the extremes of life tolerate badly with a fatal issue all too common.

In adolescents and adults other than the aged emergency cases arise in the same manner and from the same causes, but usually as an addition in the form of urinary crisis during a longer or shorter history of antecedent disorder. Such crises also create emergency cases for immediate operation.

On the other hand, a very large group of cases are of the election type and permit the surgeon to proceed more or less at his own choice as to time and means. In this sense, therefore, the treatment of such cases of lithiasis of the urethra rests on the presence or absence of complications. If the stone is mobile, recently impacted, and without total obstruction to the urine, most authorities will agree that an effort should be made to pass it forward out of the anterior urethra or backward into the bladder out of the posterior urethra by instrumental or digital manipulation. Delivery from the anterior urethra may often be made through the aid of meatotomy, crushing with alligator forceps, and dilatation of the obstructing stricture with the straight sound. Large, blunt pointed sounds may be used to retire stones into the bladder, where they may be crushed and pumped out. The disintegration of stones may be easily accomplished with the fulgurating wire through the cystoscope in the bladder or through the open end urethroscope in the urethra. Almost all uncomplicated cases will yield to the foregoing rational measures. The complicated cases, however, which almost always have infection as the primary cause of the complication, require open operation, removal of the stone, and drainage of the infected field, which necessarily embraces, secondarily, the anterior urethra, the posterior urethra, and often the bladder.

If some of the important points touching urethral and periurethral lithiasis have been even partially covered by this paper, the author will feel repaid many fold for time and labor.

45 WEST NINTH STREET.

SCLERODERMA INUSITATUM.

BY WILLIAM P. CUNNINGHAM, M. D.,
New York,

Clinical Lecturer in Dermatology, Fordham University; Clinical Assistant, New York Skin and Cancer Hospital.

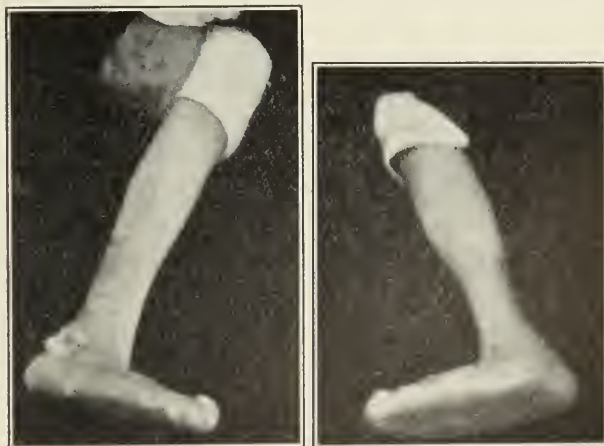
Scleroderma is sufficiently rare to warrant the description of any case that may occur; and the case I have to describe presents so many unusual features that it is well worth our careful consideration.

CASE. The patient, S. M., spinster, German, aged fifty-two years, had always been a housemaid. Her general



FIG. 1.—Showing sole of right foot.

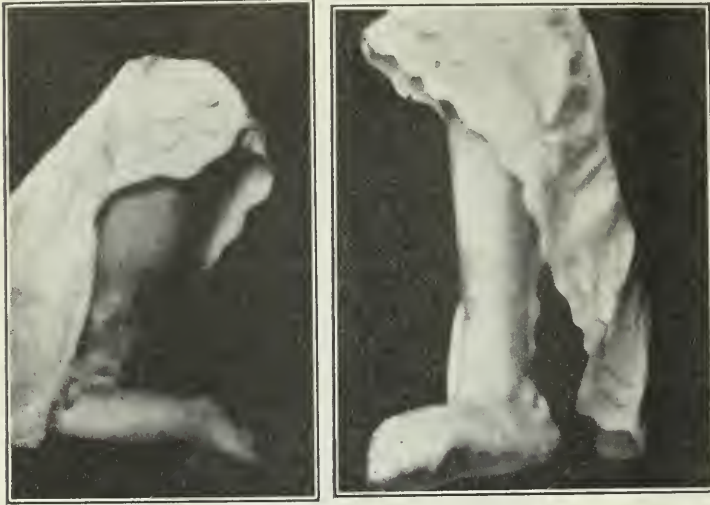
health had been excellent with the exception of rheumatoid arthritis, limited to the fingers, and scleroderma limited to the feet and legs. The rheumatoid arthritis enlarged most of her finger joints and caused a deviation of the phalanges to the ulnar side. This can be seen in Fig. 1, where the sole of the foot presents and the hand is seen holding up the dress. One little finger is fixed flat in the palm transversely across the metacarpophalangeal articulations as in Dupuytren's disease. But the fingers, despite their deformity, are pretty useful yet; and there is not the



FIGS. 2 and 3.—Showing limitation of scleroderma to foot and lower third of leg.

slightest trace of scleroderma in them. The skin is supple and soft.

The scleroderma is limited to the feet and lower third of the legs (see Figs. 2 and 3, 4 and 5). There is a sharp line of demarcation encircling the calf, about one third of the way to the knee. This line is about at the same level on both legs (compare Figs. 3 and 4). It is comparatively even all the way round. The skin immediately below it is a dead sort of pink and fairly firm. As you feel your



FIGS. 4 and 5.—Scleroderma of left foot and lower third of leg, showing line of demarcation.

way down the limb the density steadily increases. At the ankle there is no joint to be made out, just an irregular enlargement, dirty white in color, hard as stone, and etched with shallow ulcers, from one half an inch to one and one half inch in diameter, round or oval, with sluggish fibrous bases, yielding little or no discharge, and causing very little pain. There are five of these on the left limb and two on the right. The right foot from ankle to toes is an immovable mass with the toes compressed into a tapering bunch, giving the impression of a foot squeezed in a vise and set in cement. The toes are traceable to some degree, but most of their outline is lost in the compression and condensation of the tissues. The general aspect of the skin is a dirty white, shot with a few spots and streaks of lilac and brown, except in the neighborhood of the ulcers where the pigmentation is more marked.

One toe is fixed at right angles across the others like the finger in the palm.

The left foot shows about the same changes, though not to so marked a degree. The outline of the toes is better preserved. There is the same density, the same appearance of having been squeezed in a vise and set in cement. Note especially that I have had the soles of both feet photographed, to show the involvement of these regions in their entirety. This is particularly interesting in view of the fact that the soles are very rarely involved in scleroderma. The patient's mouth is undergoing some changes worth recording. The interdental spaces are widening without the loss of any teeth. Her facial appearance has changed considerably in consequence of the alteration in the shape of the superior maxilla which seems to have grown larger and more arched. But there is no scleroderma to be detected in the tissues of the mouth.

The disease began fifteen years ago. The rheumatoid arthritis and the scleroderma appeared almost simultaneously. The patient noticed a small hard spot on the inner side of the foot. It was pinkish and gradually spread, becoming whiter as it did so. Almost imperceptibly the disease extended in all directions from the initial focus up the leg, down to the toes, across the dorsum and under the foot.

An inspection of the pictures will show little nodular elevations on both feet. These are about the size of hazel nuts and somewhat softer than the

surrounding skin. This is the way the ulcers begin. These ulcers have been coming and going for several years. They are cured by care and cleanliness and relapse promptly on suspension of treatment. The special points of interest about this case are:

1. The limitation of the scleroderma for fifteen years to the legs, not a usual location; 2, the involvement of the soles, quite an unusual location; 3, the decidedly sharp line of demarcation between the diseased and healthy skin; 4, the almost exact level of that separating line on both legs; 5, the association or rather commingling of scleroderma, rheumatoid arthritis, and Dupuytren's contraction in this one patient.

The hands are affected with rheumatoid arthritis and Dupuytren's contraction, but not with scleroderma. The feet are affected with scleroderma and Dupuytren's contraction, but not with rheumatoid arthritis.

Reflecting that all three of these diseases are referred to a nervous cause, their conjoint appearance in one patient is somewhat suggestive. Is it not possible that the etiological factor (whatever it may be) which is responsible for one may be responsible for the others; that operating under different conditions it produces one or another of the three diseases, and that in my patient the conditions were such that it produced all three diseases in the one subject? Obviously this is mere speculation, but it certainly is odd to see a combination of such rare diseases, all referred to a nervous ori-



FIG. 6.—Scleroderma affecting sole of left foot.

gin, and it very naturally aroused the train of thought herein developed.

With regard to the treatment, none is of any avail.

Scleroderma sometimes improves, sometimes gets well, but more by "good luck than good management." We are as ignorant of the remedy as we

are of the cause. Whenever we seem to succeed in our empirical applications, it is simply another case of *post hoc, propter hoc*. We do not know how it happened, but we assume the credit. When the same brilliant treatment is tried again, it fails lamentably. The plain truth of the matter is that our knowledge of the subject is limited strictly to the manifestations.

315 WEST FOURTEENTH STREET.

INDURATIVE HEADACHE.

By AUGUSTUS MAVERICK, M. D.,
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The ordinary case of two hour headache has little medical interest; the victim has no trouble in making his own diagnosis and in finding a suitable cause, and as for the treatment, any amateur healer is glad to give him the necessary details. On the other hand, the headache which persists off and on for months or years and which changes the optimistic philanthropist into a bomb throwing anarchist, has a different aspect. It is among cases of this kind that the physician often has the opportunity of enjoying that most fascinating of all sport, namely, finding the cause or making the right diagnosis.

No physician has failed to have at times a really mysterious case of headache which baffled him in every diagnosis he could muster forth, in spite of which the unrelieved sufferer kept coming back to see him as regularly as the milkman.

First, of course, he made a general physical examination and noted all the patient's habits and former troubles. His thoughts probably turned first to the toxic causes of headache. The patient's habits, however, appeared to be good and his occupation seemed to be beyond suspicion. He used tobacco and alcohol little or not at all; he never touched the coal tar preparations, opium, arsenic, or other drugs; and he rarely breathed foul air or poisonous gases. There was also nothing to suggest lead poisoning, the gums showed no dark line, and the blood examination no tattooed red cells. Repeated analyses of the urine eliminated uremia. His appetite was good, dyspepsia and constipation unknown. There was no personal or family history of gout. Examination of the urine had proved the absence of diabetes and of oxaluria; and of the blood, absence of anemia and polycythemia. Finally, use of the thermometer over a certain period, together with the absence of other symptoms, had convinced the physician of the absence of any septic process, tuberculosis, malaria, or other chronic infection.

Next, the physician, following the textbook scheme, turned his attention to the possibility of some organic affection of the brain, the meninges, the endocranial vessels, the skull, and the organs of special sense. The patient had never experienced a severe injury to the head. There were no symptoms of pressure on the brain, no cerebral vomiting, no choked disc, no local palsies, and the physician felt safe in leaving out of consideration any intracerebral mass such as a new growth, an

aneurysm, an abscess, or a cyst. No symptoms were present to indicate some general organic nervous disease like general paresis, tabes dorsalis, syringomyelia, or disseminated sclerosis. A negative Wassermann and Noguchi luetin test or a trial of specific treatment left out syphilis (gumma of the brain, syphilitic endarteritis, syphilis of the meninges, tertiary syphilis of the skull). Absence of all cerebral symptoms eliminated chronic endocranial periostitis and pachymeningitis of nonspecific origin as may occur after an attack of some infection like influenza; and also eliminated hemorrhage, thrombosis, and embolism of the brain vessels. General arteriosclerosis failed as an explanation when the blood pressure was found normal. If in the beginning the headache had taken on an aspect very suspicious of cerebrospinal meningitis, examination of the spinal fluid would have aided in preventing the diagnosis. Careful examination had convinced the physician that there was no apparent deformity or inflammation of the skull itself. The eye man now took a hand and tested for errors of refraction, examining at the same time for choked disc, and for iritis, glaucoma, and other eye diseases capable of causing headache. Whether the patient was doomed to wear glasses or not, made no difference with his headache, for this was not one of the many cases in which the eyes are to blame. The ear and throat specialist now searched in vain for adenoids, polypi, nasopharyngeal catarrh, disease of the frontal, ethmoidal, and sphenoidal sinuses, and for middle ear and mastoid trouble. Then the dentist made sure the teeth were beyond suspicion.

At last, in his dilemma, the medical man fell back for his diagnosis upon that third group, the functional causes of headache. First of all, he made certain that the character of the attacks in no way resembled those typical of migraine. The sphygmomanometer had already convinced him that an abnormal blood pressure was not to blame and there was no sign of other circulatory disturbance which would produce a venous congestion of the brain. All history of excessive mental strain, proximity to loud noises, the carrying of weights on the head (e. g., a heavy hat), or a former heat stroke, was absent. The oculist had eliminated eye strain, and the general examination, if the patient was a woman, had made sure of the absence of menstrual disturbances, uterine displacement, or other apparent abnormality of these parts. The pain not being confined to the ramifications of a definite nerve trunk, with sensitive nerve points, made pure neuralgia improbable. The patient did not suffer from other functional nervous trouble, there was no epilepsy nor mild attacks of petit mal that would be followed by headache. The general control of the emotions appeared good, and for this reason the physician did not feel satisfied in resting on hysteria or neurasthenia as his decision, although the temptation by this time would have been great.

Having thus covered the field of headache causes rather thoroughly without satisfying himself or his patient, our hero's next move would probably depend a great deal on his special professional hobby. If he owned a private surgical hospital, the patient would run a certain risk of losing at least an

appendix; if he was a disciple of the Metchnikoff school he would not forget to turn loose his Bulgarian dogs of war; or if he was merely a man of modest tastes he might prefer the term "idiopathic headache" as sounding very elegant. Before he makes his final step, however, let him rub his finger over the scalp where the pain is worst and if he feels little hard, tender lumps or strands slipping beneath his finger under the skin, his diagnosis is made—the case is one of indurative headache. Some readers will now exclaim, "I know all about indurative headache and would have thought of that the first thing." Let these pass on to newer fields, for this article is dedicated to the majority of practising physicians to whom indurative headache is unknown or unappreciated.

Indurative headache, or rather "chronic muscular rheumatism" or "nodular fibromyositis," to which group this affection belongs, has been recognized and treated for the past one hundred years, at least since the writings of Balfour in 1816. For the last thirty-seven years (led by the Swede, Helleday), the Scandinavian school alone has given this subject the attention it deserves. Following their lead, German writers have taken it up and considered it thoroughly. In our own modern medical literature, as well as in French, the whole subject has been sadly neglected, remembered by only a few widely scattered articles in the journals and an occasional mention in the textbooks. We are concerned here with only one part of the whole subject, but when no less an authority than Edinger avers that two fifths of all headaches are of this indurative type, and when we realize the importance of headache in general, we can readily afford to give this affection an independent and conspicuous place in our rogue's gallery of common ills.

Indurative headache, *musculärer Kopfschmerz* of the Germans, and *céphalée musculaire* of the French, may be defined as a painful affection of the muscles in back of the head associated with sensitive nodules or indurations in the muscle sheaths and surrounding fasciæ. The victim complains of a severe neuralgic headache, which may be confined to the back of the head, but is also sometimes felt over the forehead as well, and frequently down the back of the neck and between the shoulder blades. The attack often starts with painful stiffness of the posterior neck muscles, an important diagnostic point. In a typical case the pain is excruciating; it may be almost constant the year around or recur at odd intervals, like attacks of migraine, for which it is often mistaken. Intervals of relief are more common in the warm season since cold winds and damp weather are particularly apt to excite fresh suffering. Different cases naturally vary a great deal in the severity of the pain, its extent, and frequency of recurrence. Patients mildly affected may complain merely of a sense of constriction or pressure in the back of the head or an aching between the shoulder blades; then, again, there are instances when the attack begins very acutely, the pain becomes agonizing, the head is drawn back, the patient prostrated, and an attack of acute cerebrospinal meningitis closely simulated. Untreated indurative headache persists indefinitely for years. The diagnosis is readily made

by light palpation of the muscles behind the head and neck, the examining fingers being greased with petrolatum. About the insertions of the trapezius, splenii, complexus, sternomastoid, and associated muscles, tender, ill defined strands, septa, small beads, or doughy swellings, or distinct hard nodules are felt, freely movable over the skull or sometimes attached to the periosteum beneath. Running the finger down along the side of the spine where these muscles gain attachment and where the rhomboid, scaleni, trapezius, and others arise, similar painful spots and commonly other indurations are found. The transverse processes of the cervical vertebræ are invariably sensitive to pressure, although indurations need not always be felt here. Indurations are much less common in the belly of a muscle, nevertheless the whole muscle is frequently sore when its insertions are involved. This is well seen with the trapezius, which may ache between the shoulder blades and out along its attachments to the spine of the scapula to the shoulder tip, although no indurations in its substance are apparent. Important is the fact that only one or two nodules in a muscle may cause a great deal of mischief. In addition to the muscles of the occipital bone, the mastoid process, and the upper vertebræ indurations are sometimes, though much less seldom, found in muscular insertions of the clavicle and hyoid bones; and occasionally in the frontal part of the occipitofrontalis and in the temporal muscles, but without indurations, headache may be transferred to these regions during an attack. Even little nodules in the facial muscles have been noted. An associated involvement of the muscles throughout the body may occur, but is not common. Some authorities have also drawn attention to a not infrequent general lymphatic glandular enlargement, thickenings of the cervical sympathetic nerve branches, and sometimes a tendency to goitre.

The diagnosis of indurative headache is easy when its frequency is kept in mind. It is hardly necessary to mention the possibility of mistaking the natural roughness of the occipital bone for indurations. The severe cases, which show a resemblance to acute meningitis, can be distinguished by the absence of fever and Kernig's sign and by making a spinal puncture if occasion demands; likewise by the relief from hot applications and other simple measures which will not influence the progress of the graver malady. Periodical attacks of indurative headache are often mistaken for migraine. In migraine, however, there are no sensitive muscular nodules, and between attacks the scalp is not apt to be sensitive to touch; furthermore, the pain when severe does not radiate down the back out to the shoulders, and painful stiffness of the neck does not usher in an attack. The pain of indurative headache is not preceded by a sensitive aura, nor terminated by vomiting. Migraine almost invariably begins in early youth, but indurative headache usually arises in adults. The commonness of unilateral headache and of ocular symptoms in migraine is also to be remembered. The final test is the treatment; the massage which cures most cases of indurative headache has no such influence on true migraine, and the cases of migraine we hear reported as cured by massage are

usually all cases of indurative headache. Obviously, the two conditions may be associated, and muscular indurations may attack victims of migraine as well as others.

These indurations (*Muskelschwüelen*), as the name indicates, are composed of fibrous tissue thickenings; in early stages they are edematous and feel soft or elastic, but as the fibrous tissue contracts they become hard and dense. They arise in the muscle sheath and its proliferations into the muscle substance, also in the subcutaneous connective tissue, the condition being really more of a fibrositis than a myositis, strictly speaking. The underlying cause is apparently some nutritive change in the muscles involved, possibly an insufficient blood supply caused by the lack of exercise our civilized life demands of them, or what some writers speak of as a rust of the tissues or premature senility of the muscles. The pressure caused by the contracting fibrous tissue on entangled nerves is apparently responsible for the pain. The toxins of chronic constipation, oral sepsis, influenza, recurring sore throat, rheumatism, and other infections have been blamed for playing some part. The history of a previous attack of acute rheumatic fever is not common. Exposure of the head and neck to cold, as to cold winds and to frequent wetting of the hair, certainly plays a part in exciting an attack of headache and probably in encouraging the formation of indurations as well. Any occupation which tends to strain the neck muscles or hold them taut is unfavorable. General fatigue and damp weather also often encourage an attack, and certain individuals may be unfavorably influenced by constipation, acute indigestion, tobacco, alcohol, and other factors which may not influence others. Heredity is thought by some to be of importance. Women are more common victims than men, and most cases arise in adults, although children may suffer and even young infants.

The treatment of indurative headache consists in giving the involved areas better blood supply and limbering up the muscles. This is best done by massage. The indurations are stroked toward the body with the thumb, and then firmer strokes are made with the whole hand of all the muscles along the back of the neck. Such treatment is continued from ten to fifteen minutes and repeated for the first two weeks once or twice a day. The initial massage in very sensitive cases must be light and less frequent. The prognosis in cases properly massaged is particularly good; this remedy, for which we are under obligations to the Swedes, especially the writings of Nörström, was used by Müller with curative results in 119 of 140 cases. The benefit is usually rapid and marked, but in stubborn cases massage may have to be continued several months. For a thoroughly satisfactory result, the indurations must be completely dispersed, otherwise the pain and aching recur. The galvanic current is heartily recommended as an additional measure by many, also vibrating manipulation, but this last is contraindicated in patients with arteriosclerosis. In America, different physicians have used with reported success the sinusoidal current following a course of massage. The value of a spa treatment is doubtful and the same may be said of adminis-

tering potassium iodide in an effort to dissolve the fibrous overgrowth. Stockman recommends the excision of large single nodules not too deeply situated, and describes the use of five to eight minims of one per cent. chromic acid, injected hypodermically into a nodule, causing it to shrink and greatly relieving the pain if the right spot is reached. For symptomatic relief of the headache itself, hot applications over the back of the neck and head are beneficial, together with the administration of sodium salicylate, fifteen grains, repeated two or three times. Early use of hot compresses and the salicylate, together with rest in bed, the patient being well covered, may abort an attack. The coal tars are best dispensed with. To prevent recurrences, the patient must protect himself from cold winds, too frequent washing of the hair, fatigue, and straining of the neck muscles. A dry, warm climate is preferable. A woolen night cap in winter is often a beneficial addition to the evening makeup, and bald headed sufferers have been reported cured by wearing a snugly fitting wig. Any neurasthenia, anemia, chronic tonsillitis, gastrointestinal, or other trouble associated with a case of indurative headache must naturally receive attention. The following case may be mentioned as a rather typical example of indurative headache:

CASE. An automobile mechanical expert, aged twenty-nine years, had for two years suffered from severe headache. This headache was worst over the occiput, but there was frequently additional pain between the shoulder blades and sometimes over the forehead. The attacks were severer in winter, when they came on every week or two and lasted several days at a time, always becoming worse as night drew on. The pain was often very extreme and greatly interfered with his business. Running an automobile in a cold wind was very apt to excite an attack, and more recently he had suffered from cranking a large racing car which caused an overexertion of his neck to shoulder muscles. Between attacks of headache he always had more or less tenderness over the cervical spine. He smoked cigarettes to excess and thought this had an unfavorable influence on his headaches, and he also thought that the pain was worse when he became constipated.

Examination of the patient's head and neck was made in an interval free from headache. In the scalp over the occiput several hard lumps were felt, varying from the size of a small pea to a large bean and very sensitive to touch. These were freely movable over the bone, but there were also small fibrous strands, possibly normal, attached to the underlying periosteum. Over the mastoid region on both sides, little superficial swellings were seen which felt quite soft and which the patient complained of as being "sore." There was pain on pressure over the sides of the spine, not in the middle line, especially marked over the lower cervical and upper dorsal vertebrae. The whole upper back out over the shoulder blades was sensitive. No other indurations were felt over the spine or on other parts of the head. The lymph nodes along the anterior border of the trapezius, below the jaw and above the clavicle had a hard, shotty feel and were rather painful to pressure. There was an undue fullness in the region of the thyroid gland and a suspicion of exophthalmus.

Further questioning showed the patient to have suffered from frequent colds, sore throat, and attacks of "grippe" since childhood, and several years before a physician had told him he had tuberculosis. At nineteen years of age he was operated upon for appendicitis with pus and four years later for hernia in the scar. At the age of twenty-four years, in Columbus, Ohio, he had an attack of "nervous breakdown" with "pain in the back, headache, crying spells, and loss of senses at times." He "was always very nervous" but had had no similar outbreaks. At about this time he also suffered a moderate heat stroke. His venereal history consisted of chronic gonorrhea at twenty-one years and several "soft chancres" at nineteen. This last received

only local treatment and was not followed by any general symptoms. A year later, however, another physician gave him iodide of potassium and mercurial inunctions because of "pimples on the back," but this treatment was not long continued or repeated. Mumps, measles, and perhaps scarlet fever, in childhood, completed the medical history. All the foregoing events, it will be noted, occurred before the present illness. He had never had rheumatism, nor muscle or joint trouble of any kind. He dissipated a great deal when younger, but now rarely touched alcohol. His wife died of tuberculosis a few years before. His parents and grand parents, as far as he remembered, were all healthy and long lived. No other relatives that he knew had chronic headaches, and there was no history of organic nervous trouble.

The general examination of this patient showed several points of interest. He had the appearance of a very nervous, emaciated man of about twenty-six years. His skin was clear, save for some old acne papules on the back, and showed no marks suspicious of former lues. The hair was thick and brown, the pupils equal and responsive to light and distance, the gums hard and mucous membrane bright red; the throat showed signs of chronic catarrh. The left lung apex was consolidated, but no râles were heard. The heart seemed normal. The liver and spleen were not palpable, and the abdomen was otherwise negative, save for the large scar of a former appendix operation. In the groins, especially the right, the glands were moderately swollen, hard, and quite sensitive to touch. They were also readily felt in the axilla and bend of the elbow, but these were not tender. The patella and Achilles tendon reflexes were equal on the two sides and slightly exaggerated. Blood pressure registered 120 mm. Hg., pulse 80, temperature and respiration normal. Hemoglobin was eighty-five per cent. Urine was negative except for threads of an old urethritis with many pus cells and mucous fibres microscopically. The sputum was once examined during a persistent cold and no tubercle bacilli were found. A Wassermann test was made and proved negative; the evidence that the patient ever had syphilis was certainly not great.

The treatment of this case along the usual lines gave relief, and the chances of permanent cure after a continued massage seemed highly favorable. The patient was also made to stop smoking, to wear suitable glasses, to avoid constipation, and to take better care of himself in general. The previous treatment he had received during his two years of suffering was naturally of a most varied kind, and at no time were the indurations noticed. Like many unrelieved sufferers, he finally found himself in the hands of a so called osteopath. If there is one trouble these mechanical bone artists ought to relieve by their rubbing it is certainly indurative headache, but this fellow, not to be misled by the actual seat of the pain, did all his rubbing over the lumbar region and in this way missed the chance of his lifetime to do a little good.

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507 BEDELL BUILDING.

THE METAMORPHOSIS OF THE WHITE BLOOD CORPUSCLE.

A New Interpretation of Facts.

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For the greater part of a century the leucocyte, commonly called the white blood corpuscle, has held the centre of the stage in all biological, physiological, and pathological circles.

One eminent authority declares that it is the pivot around which modern biology rotates. A scientist of conceded eminence and worldwide repute regards it as the nearest possible answer to the question: "What is life?" All authorities regard it as "living protoplasm," the "primordial animal cell," the universal "tissue builder"—in short, as a living, moving, and immortal animal cell. The correctness of this opinion has seemed to be self evident, for a certain period of its history the white corpuscle appears as *motum corpusculum*, or moving body. "Seeing is believing," as long ago expressed in the term, *vide et crede*, and, hence, to see the leucocyte send forth and then withdraw its tentacles, or pseudopodia, after the manner of its projection and retraction of the horns, so called, of the snail, and with the effect of locomotion, is but to be convinced that it is as certainly a thing of life as the snail; in other words, to watch the white blood corpuscle in the performance of its evolutions, from ameboid progression on up to vital duplication, is but to incur the conviction that it is a living organism and the beginning of all animal life, as the biologists have long and enthusiastically contended.

In short, it is confidently believed in all medical circles that the white blood corpuscle is a living cell and that the changes exhibited by it are genuine examples of metamorphosis or vital duplication, corresponding in every essential particular to the changes that take place in the developing ova of birds and animals. For many years I was as firm a believer in this doctrine as any one, due not to any personal study of its claims to credence or other data, but to the fact that it was originated by scientists of worldwide repute, and approved by others scarcely less renowned.

INCIDENTAL EVIDENCES.

It will be well, no doubt, to pave the way for the acceptance of what I conceive to be the correct explanation of the changes exhibited by the white corpuscle by calling attention, in the first place, to two facts which are particularly, though incidentally, likely to discredit the proposition that it is the primordial animal cell and a defender of vital interests—namely:

1. The fact that in health there is on the average only one white blood corpuscle to about one thousand of the red—which means that the former are, to say the least, unimportant.

2. The fact that in the great majority of diseases the white corpuscles are unusually numerous to begin with and become more and more so as the morbid process advances—a fact which is decidedly discrediting to the notion that they appear on such occasions with the view of rebuilding wornout tissues and defending vital interests by devouring germs. For, if this were true, the increase of their number would be attended by a larger percentage of beneficial results than we have thus far witnessed in the progress of such cases.

CONSCIENTIOUS INTERROGATIONS.

At this juncture let us lay aside all pride of opinion or other deterrent influence and look the facts of experience and observation squarely in the face; and let us begin by propounding to our inner consciousness the obviously pertinent questions:

1. In view of the fact that in health there is only one white corpuscle to one thousand of the red—things known to be normal and essential,—how can such a limited amount of tissue building material as that carried by the well man produce such voluminous results as the facts of his case naturally imply—namely, the evidences of good nutrition and its resultants, vim, vigor, and vitality?

2. If the white corpuscles are both germ devourers and tissue builders, why do they not succeed more frequently and promptly than they do in the accomplishment of their allotted tasks?

3. If these so called white cells are what they are generally supposed to be, would they not be more numerous in health, and less so in times of debility and disease?

It is practically impossible to escape the conclusion that these questions must be answered in the affirmative. At all events, the notion that the leucocyte is a valuable asset in Nature's economy is sufficiently discredited by these interrogations to justify the suspicion, to say the least, that its metamorphosis phenomena, variously referred to in the aggregate as mitosis, vital duplication, segmentation, and cell division, may be accounted for by referring them to agencies of a nonvital character—to the forces, not of life, but of decay.

I shall now undertake to prove that these corpuscles are composed of partially digested protein; that this, after having become inspissated, is broken into these so called cells in passing through the trabeculæ of the spleen and lymph nodes (as molten lead is broken in shot making) and that they owe their activities to the forces not of life nor of vital duplication, but of chemical dissolution—to the combined effects of chemotaxis, disintegration, and gaseous expansion.

And now comes to mind the well known and very significant circumstance, that in the early history of the cell theory the great warriors in the field of medical polemics were divided into two antagonistic camps, on account of the similarity that subsists between the "colorless corpuscles," as the leucocytes were then called, and pus corpuscles, the one party stoutly averring that these hypothetical bones of contention are identical, while the other as strenuously insisted that they are different. After a long period of disputation the matter was settled, it will be remembered, by the dictum of the rising

medical genius of that day, Professor Rudolph Virchow, and wrongfully at that, as a duly exacting examination of the subject will show. That this dispute should have arisen is not at all surprising, however, for the resemblance that the one bears to the other is so very close that the settlement of such a question depends, according to Virchow, upon the acquirement of a knowledge of the source from which the particles in dispute had been derived; if from an abnormal source they are pus corpuscles; if from the blood they are white corpuscles.¹

The further we go in the study of its claims the more evident it will be that this doctrine is, to say the least, utterly impracticable and that its perpetuity hangs upon an exceedingly slender thread.

DISCREPANCIES AND INCONGRUITIES.

Let us now examine with a justly critical eye the facts advanced by authorities in support of their contention that the white corpuscle undergoes the same kind of changes that take place in the development of the ova of birds and animals, and which are variously termed metamorphosis, vital duplication, cell division, segmentation, and mitosis.

In the first place, authorities have shown quite clearly, though incidentally and unconsciously, that there is a vast and irreconcilable difference between the changes that take place in *real* animal cells—the ova of birds and animals—as will be seen by reference to the diagrams they have used in setting forth the existing doctrine of cell division. For the changes thus depicted as occurring in real cells, as we see them in ova and disease germs, are perfectly regular, or uniform, while those set forth as taking place in the so called white cells are absolutely irregular. For instance, in speaking of the development of ova, Professor Jacques Loeb says: "After the entrance of the spermatozoon the egg has one nucleus which during segmentation is successively divided into two, four, eight, sixteen, etc., nuclei."²

Regarding the development of bacilli we are told: "At the beginning there is one bacillus. At the end of the second half hour there will be four bacilli. At the end of the third half hour there will be eight," and so on *ad infinitum*. In short, every change of this kind is made with geometrical precision and regularity—a uniformity which has never been exhibited by the white corpuscle, as every hematologist will frankly admit. Examine the diagrams by which our authorities illustrate the changes that take place in the white corpuscle, together with the explanations presented in connection therewith in illustration of the segmentation of the ova, and you will be absolutely amazed on seeing, as you will, the immensity of the difference that actually exists between the two sets of supposedly similar changes.

You will find upon examination that the illustrations of this matter presented by all the authorities involve discrepancies. That is to say, you will see that the one represents real cell division, and the other represents a supposedly similar, but widely dissimilar phenomenon, that which takes place in ova being perfectly regular and symmetrical, while

¹See *Cellular Pathology*, pp. 92, 187, 188.

²*Science*, October 4, 1907.

the other is absolutely irregular and asymmetrical, facts which stamp this doctrine of metamorphic identity, or even the idea of similarity, as the merest figment of the imagination, an iridescent dream, a delusion, and a snare.

FALLACIOUS SUPPORT.

The leucocytic theory finds its only illustrative support in the ameba—a thing which is not only open to the objection of being utterly irregular, but to the further charge of having its origin in sluggish streams and stagnant ponds, where organic substances are passing into decay—conditions which are absolutely, not to say overwhelmingly discrediting to the theory that it is a living organism. The well known fact that the ameba is developed in connection with “mud” and “decaying leaves,” as stated in Professor Dodge’s *Elementary Practical Biology*, ought to be sufficient to satisfy any one that it is not a protozoon, but a particle of decaying organic matter—that the glutinous, or gummy, element of decaying plants is soaked out and formed by cohesive attraction into those masses which are termed *ameba* and that that part of the same which is variously termed the “vacuole” and the “contractile vesicle” is simply that portion of their substance which is being the more rapidly dissolved.

Verily, there is no lack of reasons for saying that every change, whether of form or position or appearance, that takes place in those inhabitants of *stagnant* ponds and *diseased* bodies now under consideration is logically attributable to the forces of adhesion, gaseous expansion, and chemotaxis. The truth is, the simulations of life exhibited by the objects under consideration have been so complete and so striking that it was almost impossible for any one to discern the evidences that they have afforded to the contrary.

“THE DEATH (?) OF AN AMEBA.”

Under this heading Professor Linton has recorded in *Science* for July 21, 1905, an observation that militates enormously against the current opinion of the ameba. He states in substance that, while watching an ameba pass through the changes which are regarded as indications of life, comprehending those extrusions of its substance which are termed pseudopodia and that solution of continuity called vital duplication, he witnessed with astonishment the sudden falling to pieces of one of the parts into which it had divided. He illustrated the changes to which he referred by means of a set of drawings, number 8 being representative of the “final catastrophe,” in the history of “this bit of supposedly immortal living substance,” to quote his own words.

The fact that Doctor Linton placed an interrogation point in the title of his paper seems to indicate that his faith in the *immortality* of the ameba has been shaken. At all events, the fact that the ameba is found only where decay is going on, together with the fact that “the ectosarc and protoplasm disappeared suddenly as if by a disruptive explosion,” to quote Linton’s own words, show, and beyond the possibility of a reasonable doubt, that this solitary prototype of that *pseudopodic* inhabitant of *diseased bodies* called the leucocyte, is not a *real*

animal, but a *pseudoanimal*; not a real cell, but a *pseudocell*; not genuine protoplasm, but the hypothetical protoplasm, or *pseudoprotoplasm*, that is found in *stagnant* ponds; that the plasmlike material called “animal protoplasm” is not the real physical basis of life, but the imaginary, or pseudo-basis thereof closely related in character to *Bathynus*, the pelagic material set forth by the brilliant but erratic Professor Huxley as protoplasm of the most fundamental order—a purely hypothetical vagary which was exploded during the lifetime of its illustrious author.

In fine, be it said that the proposition that the leucocyte is a phagocyte, or germ devourer, can be completely exploded by a careful study of a few well known facts, supplemented by a moderate amount of legitimate reasoning.

WELL KNOWN FACTS.

1. The fact that fully digested protein called peptone is both perfectly *diffusible* and *noncoagulable*.
2. The fact so called animal protoplasm, more properly serum albumin, together with all other material of the kind that we find in the blood, the white corpuscles not excepted, are open to the objection of being only partially diffusible and decidedly coagulable—facts which plainly imply that everything of the kind is nothing more or less than partially digested material and is liable to produce a vast amount of trouble, by blocking the glands and capillaries, as in congestion and embolic obstruction, and by paving the way for the propagation of infective organisms by affording them a “suitable soil.”
3. The well known fact that the disease germ is in its nature a promoter of decay—the *tertium quid*, or third agent, on which the oxidation of the unstable forms of organic matter depends.

These things being true, it follows, and with theory smashing power, that in every phagocytic operation that ever occurred, comprehending, as it does, the coming together of a living germ and a perishable substance—the so called phagocyte—the latter was not the destroyer, but the *thing destroyed*.

The argument now advanced may be summed up and emphasized by saying: The various things that go to make the animal, vegetable, and bacterial worlds have a *definite* and practically *uniform* contour and a no less definite manner and order of development, while that matchless deceiver, the white blood corpuscle, stands almost alone in its morphological versatility, in its indefinable shapelessness, and in its developmental irregularities, its only counterpart being the equally irregular, shapeless, and indefinable thing which is called the ameba. The study of the morphology and life history of plants, animals, and microorganisms enables us to describe with commendable accuracy the changes which will take place in succeeding generations of the same. But no such advantage can be had from the study of the so called “primordial animal cell.” For it utterly defies the highest powers and possibilities of human insight, prevision, and description, not so much as a fairly accurate conception of the changes it is destined to undergo being at all possible. At best the history of this supposedly im-

mortal thing can only be approximately described in advance of its coming by saying: The white blood corpuscle will start out as a spheroidal, non-nuclear, and nonmotile mass; that at some future but indeterminable period it will appear as a mononuclear object of no certain but very uncertain configuration; that at a later but very uncertain moment of time it will appear as a grotesquely irregular *motum corpusculum*, or moving body, and that at a still later but very uncertain moment of time it will fall to pieces and disappear—all this without bestowing upon its host, the body, so much as a *single discoverable benefaction*.

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TEETHING AS A CAUSE OF DISEASE IN INFANCY.*

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Notwithstanding the remarkable progress that has been made in the science of medicine during the last fifty years, certain traditional beliefs remain as deeply rooted as ever. Not the least noteworthy is the important rôle which teething is supposed to play in the etiology of the diseases of infancy. Every day mothers bring their babies to the clinic, attributing their illness to teething. Every day, in taking the history of the child, the mother volunteers the information that some previous illness was ascribed by the attending physician to teething. But it is not only in the dispensary practice that we meet with these beliefs. In private practice even very intelligent mothers are only too ready to attribute many disturbances to teething; and for this we physicians are to some extent responsible. We are so apt to follow the line of least resistance. It is so much easier to agree than to disagree and explain. Frequently we are at a loss to make a diagnosis; the mother suggests teething and we gratefully accept the suggestion. But as Holt says, "the physician who starts out with the idea that in infants dentition may produce all symptoms, usually gets no further than this in his etiological investigations."

The present views with regard to teething are three: First, there are those who believe that very many disturbances may be due to teething; second, those who believe that none are due to teething; and, third, those who take a middle course, believing that a few disturbances may be caused by teething. To the first group belong a large part of the laity and some physicians. In a recent paper, Neumann has shown in graphic form that in Berlin, from 1877 to 1910, the number of certificates giving teething as a cause of death in infants has diminished from fourteen to three per 1,000. Three in a thousand is, I think, still pretty high. The number of certificates giving teething as a cause of death is an index of the intelligence of the physicians, their knowledge of pediatrics being in inverse proportion to the number of such certificates submitted.

The chief danger in believing that many disturbances are due to teething lies in the fact that valuable time may be lost. For example, in cases of acute gastroenteritis, the disease, falsely attributed to teething, is allowed to progress, and when the child is dangerously ill, possibly beyond all medical help, it is brought for treatment.

The second view is that "teething produces nothing but teeth," that the eruption of the teeth is a physiological process similar to the growth of hair and nails. This view, expressed by Politzer and Fleischmann forty years ago, and more recently by Kassowitz and others, is not incompatible in a somewhat modified form with the third view. So modified it would read, teething produces nothing but teeth in normal healthy infants. In such individuals the hair and nails are of normal appearance; but just as in certain constitutional diseases, such as syphilis and cretinism, these parts may show changes, so in infants with certain constitutional peculiarities the eruption of teeth may be sometimes associated with certain disturbances. The fact that an infant has such disturbances is, I believe, proof that it is not normal. I shall elaborate this point later.

Let us consider briefly the ways in which disturbances may be incorrectly attributed to teething: First, the presence of symptoms at the time of teething may be merely a coincidence. We have all seen numbers of children go through teething without any disturbances. If a baby contracted whooping cough during dentition no one would think of holding the teeth responsible, because we know that this disease is caused by a specific infectious material and is acquired by contact with another individual having the disease. The eruption of the twenty temporary teeth usually takes place from the seventh month to the beginning of the third year, that is, on the average about one tooth a month. It is therefore not surprising that disturbances quite independent of teething should occasionally occur when a tooth is appearing. Many babies are weaned at the seventh month; what is more natural than that the child should have digestive disturbances when put upon artificial feeding? Second, the true cause of the disturbance may not be recognized on account of an incomplete examination. For example, a baby is restless and has a rise of temperature, there is no reason to suspect ear trouble, and the ears are not examined. A diagnosis of "teething" is made and a couple of days later the drum perforates and there is a discharge. Or with similar symptoms, the urine is not examined on account of the difficulty of obtaining a specimen. Teething is diagnosed. The symptoms persist, the urine is examined, and a pyelocystitis is found. Third, it may not be possible to determine the cause, even with the most careful and painstaking examination. It occasionally happens that even at the autopsy table the cause of death cannot be ascertained, but we are not on that account justified in attributing it to teething.

Teething produces nothing but teeth in normal, healthy infants, but many infants have constitutional peculiarities which are not strikingly apparent. Children with mild manifestations of rickets

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may have disturbances of dentition, but there are two constitutional peculiarities to which especially I should like to call your attention, namely, the so called exudative and the spasmophilic diathesis.

There is a form of papular urticaria frequently met with in infants. This has often been attributed to teething, as the German name, *Zahnpocken*, indicates. This eruption is but one of the manifestations of the exudative diathesis. Certain forms of infantile eczema are due to the same cause and are falsely ascribed to teething. These children with the exudative diathesis are also subject to recurring attacks of catarrh of the mucous membranes, rhinitis, laryngitis, bronchitis. I have also seen a number of such infants with recurring attacks of diarrhea with loose, mucous stools, quite independent of indiscretions of diet. Should such an attack occur at the time of the eruption of a tooth, what would be more natural than to suppose that one was the cause of the other? A careful analysis of the previous history, however, together with a further observation of the patient, will reveal the true underlying etiological factor, namely, this peculiar constitutional anomaly which is probably due to some disturbance of metabolism, the exact nature of which is as yet unknown.

Similarly the convulsions occurring in infancy are frequently ascribed to teething, as witness the German term *Zahnkrämpfe*. We now know, however, that such children have the so called spasmophilic tendency, and even in those who do not give all the clinical symptoms associated with this condition, the electrical reactions present changes from the normal. Moro, as evidence of a possible causal connection, says: "The occurrence of genuine eclamptic seizures has been observed in some infants during the period of teething and never afterward." But it must be remembered that during the period of dentition many other changes are taking place; it is a time of rapid development of nearly all the structures of the organism. In this connection it is noteworthy that the manifestations of the exudative and spasmophilic diathesis have a tendency to diminish or disappear as the child grows older. "Outgrowing a disease" is not merely a phrase, in these conditions it actually takes place.

Many of the symptoms attributed to teething are met with in the early months, before the eruption of teeth has begun. Many mothers consider an increased flow of saliva and putting the fingers in the mouth, indications of the onset of teething; but I have seen countless babies in which both these symptoms were present quite independently of dentition. The eruption of the permanent teeth is occasionally attended with some disturbance, but how often would one attribute a skin eruption, a diarrhea, or a convulsion in an older child to teething. At a time when teething was considered the cause of a number of infantile disorders, the gums were frequently lanced. Why has this operation been so largely given up? Obviously because it did not meet the indications. It is still done occasionally, but I believe often, just as the cutting of the frenum of the tongue, to ease the mind of the mother.

Let us admit that a few slight disturbances may be caused by teething; that requires no emphasizing. What we should emphasize is that in the pres-

ence of a disease in an infant we should not diagnose teething as a cause except as a last resort, after every other possible explanation has been excluded. The teeth should be treated as we treat prisoners at the bar. We should consider them innocent until proved guilty.

250 WEST EIGHTY-EIGHTH STREET.

THE HISTORY OF BLOODLETTING.

By FIELDING H. GARRISON, M. D.,
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(Concluded from page 437.)

After the fiasco of derivative bloodletting, many physicians gave up venesection altogether, but in Italy, under the leadership of Botallo, the practice was pushed to the extraordinary extent of bleeding in all disease without exception and that abundantly and many times in succession. For fully three centuries the Italians led the world, as it were, in extensive bloodletting. Costly bleeding glasses were hereditary in Italian families and handed down as heirlooms.¹¹

A special feature of bloodletting in the northern countries during the fifteenth and sixteenth centuries was its connection with astrology and the fact that it had become so popular among the masses that it was done in the public baths, in other words, almost as often as a man took a bath. After the invention of printing a curious portion of the huge vernacular literature of the period consisted of the so called bloodletting calendars and purgation calendars. In connection with these it is of interest to note that the first medical publication to be set in type was the Purgation Calendar (*Laxierkalender*) of 1457, printed by Gutenberg in the type of his 36 line Bible and consisting of a single sheet of paper in the Bibliothèque nationale at Paris; the second in order of time being the Bloodletting Calendar (*Aderlasskalender*), printed at Mainz in 1462, and now contained in the Fürstenberg library at Donaueschingen in the Grand Duchy of Baden.¹² As in some of the drug store almanacs within our own recollection, the writers of these calendars affected the scientific power of prediction in regard to wars, famines, epidemic diseases, and other pests that were to befall mankind and their efforts were specially characterized by the fact that the times for purgation and the innumerable points of election in bloodletting were determined by "judicial astrology," that is, by horoscopes drawn from the ascendancies and conjunctions of the planets, under the signs of the zodiac. In the sixteenth and seventeenth centuries, the doctor was too frequently an astrologer and old Fracastorius declared men to be "slaves to the rabble of the sky."¹³ Doctor Urinal and Doctor Almanac were standard figures in the plays of the English dramatists of the Elizabethan and Jacobean periods, for example, in Middleton's *Inner Temple Masque*, which opens with "Doctor

¹¹See the interesting essay, The Old Venetian Bleeding Glass, by Dr. John Knott in *Medical Press and Circular*, xlvii, 662-664, London, 1889.

¹²Sudhoff, *Archiv für Geschichte der Medizin*, 8, i, 223, 227, Leipsic, 1907.

¹³Cited by Osler in *Proceedings of Charaka Club*, New York, ii, 15, 1906.

Almanac, coming from the funeral of December or the Old Year":

I have seen the Old Year fairly buried;
Good gentlemen he was, but towards his end
Full of diseases: he kept no good diet;

That was his fault, and many an old year smells on't.

The fifteenth century was, as stated, the great age of common public baths; the bath keeper was usually a barber surgeon and bloodletter, and toward the beginning of the sixteenth century these baths came to be frequented by both sexes at one and the same time. The contemporary pictures of the artists of the period reveal the astonishing spectacle of men and women, absolutely nude, huddled together in a huge common bath vat or in a steaming bath room, some playing upon musical instruments, some reading books, some guzzling wine, others eating a set meal from a temporary board arrangement not unlike that employed in Pullman cars, all soaking themselves at leisure and perspiring freely, while, as if to achieve the height of the ridiculous, a stream of blood spouts from the median basilic vein of some patron who is testing the bath keeper's skill as a venesection. Public establishments of this kind were still common at Budapest in the first half of the nineteenth century and have been described in detail in the Hungarian travels of Richard Bright (of Bright's disease).

Harvey's quantitative demonstration of the circulation of the blood had no appreciable effect upon the practice of bloodletting and it remained for Magendie to point out what should have been an immediate inference from Harvey's data, namely, that the so called points of election in venesection are really indifferent points, since the effect of opening the different veins anywhere is exactly the same. Like many great experimenters, Harvey himself was only a passable practitioner and, in the treatment of disease, he and his contemporaries were completely overtopped and overshadowed by the great figure of Thomas Sydenham, who ennobled the practice of medicine through those personal qualities of piety, good humor, and common sense which Edmund Burke declared to be the genius of the English race. All agree that Sydenham resembles Hippocrates in his original descriptions of disease, and when he says that he holds himself answerable to God for the care of his patients, we recognize the same dignified regard for human suffering which characterized the Greek master. It was Sydenham who first threw open the windows and let the fresh air into the sickroom, introduced Peruvian bark and pargoric, prescribed cooling draughts for feverish patients, steel tonics for love-sick or green sick maidens, riding in the open air for consumptives, and divested his prescriptions of all filthy and nauseating ingredients. In relation to venesection, Sydenham may be classed among the extensive, as opposed to the intensive, bloodletters. In almost every disease known to him he began his treatment by opening a vein, but he seldom let more than eight to ten ounces of blood at a time, and, if this did not avail, he pushed the procedure no further. This was his practice in smallpox, erysipelas, gout, rheumatism, hysteria, chorea, insanity, dysentery, renal and biliary colic, hemoptysis, hemate-

mesis and hematuria, leucorrhea, metrorrhagia, hemorrhoids, scurvy, epistaxis, convulsive cough in children, and in the condition known as "going into a decline." In rheumatism, gout, renal calculus, and intestinal obstruction blood was let from the arm of the affected side; in gonorrhea he directed that the blood should be drawn about once or twice when half way through the treatment, as also in measles complicated with diarrhea or bronchitis. Venesection was interdicted by him in dropsy, diabetes, cholera morbus, and suppression of lochial discharges. The principal authority for Sydenham's practice is his little therapeutic manual (*Præcessus integri*) of 1691, which was the English physician's standby for over a century and which a certain Oxford enthusiast of the day is said to have committed to memory. From the details just gleaned from this book it is evident that in comparison with contemporary French practice, Sydenham's bloodletting was sensible, moderate, and temperate. It is said of Guy Patin, for instance, that he once bled a colleague thirty-two successive times for a continued fever and showed his own implicit faith in venesection by bleeding himself seven times in succession for a simple cold in the head.¹⁴ The abuse of bloodletting by the seventeenth century doctors was, in fact, a favorite theme for the satire of Molière and Le Sage, and the story of Doctor Sangrado, the "tall, withered, wan executioner of the sisters three," who reduced the old canon Sedillo "to death's door in less than two days" by drawing twelve good porringers of blood at the start, with repetitions, is a well known chapter of *Gil Blas*. In the same novel, Le Sage gives an amusing instance of the use of another means of depletion, the seton or issue, an adjuvant of treatment which was first mentioned by the Salernitan surgeons, Roger and Roland, and was put upon a practical footing by the directions of Lanfranc. A little girl, Inesilla, after the communicative habit of the *enfant terrible*, betrays the secrets of the housekeeper's toilet to Gil Blas, which the valet souled hero proceeds to give away as follows: "Dame Jacinta, as I have said before, though a little stricken in years, had still some bloom. To be sure, she spared no pains to cherish it: besides daily evacuations, she took plentiful doses of all powerful jelly. She got her sleep in the night too, while I sat up with my master. But what perhaps contributed most to the freshness of this everlasting flower, was an issue in each leg, of which I should never have known, but for that blab Inesilla."¹⁵

In seventeenth century Italy, bloodletting was as popular as ever and was the subject of elaborate copperplate illustration in the many books on the subject, of which Malfi's *Il Barbiere* (1618) may be taken as the type.

The eighteenth century has always been accounted the Golden Age, alike of the successful practitioner and the successful quack, and both found themselves confirmed and fortified in the practice of venesection by the ingenious arguments of the medical theorists who swarmed during this period. Boerhaave's doctrine of the plethora furnished an additional excuse for it, and Boerhaave was fol-

¹⁴See Knott, *opere citato*.

¹⁵Le Sage, *Gil Blas* (Smollett's translation).

lowed by van Swieten and the old Vienna school. Stahl's theory (phlogiston) gave it the well known antiphlogistic flavor. Reil favored it on physiological, Brown and Friedrich Hoffmann on mechanical grounds, for the relief of sthenic and asthenic, spasmodic and atonic conditions. Johann Peter Frank held that it promoted the resorption of settled exudates and regulated the excretions. Haller tried to justify or explain its rationale by experiment, but got no further than the statement that it hastens the blood current. Percival Pott, Pringle, and the members of the Royal Academy of Surgery of Paris, bore a hard reputation as intensive blood-letters. Cullen and Théophile de Bordeu stand out as physicians who were very moderate in the practice. In the American colonies, Benjamin Rush, a follower of John Brown, was a veritable Sangrado of the New World, but the Anglo-Saxon practitioner of more conservative type was still a follower of Sydenham. General Washington, however, lost his life from bloodletting. A well worn epigram at the expense of John Coakley Lettsom, one of the illustrious line of English Quaker practitioners, noted for their ability, liberality of spirit, and their large charities, may still be quoted, although, like most epigrams, it was perpetrated at the expense of truth:

When patients sick to me apply,
I purges, bleeds, and sweats 'em;
If after that they choose to die,
What's that to me? I. Lettsom.

The first half of the nineteenth century is especially interesting as marking the pro-wave of extensive and intensive bloodletting, while, at the same time, by the law of action and reaction, the general decline of the practice was brought about in a remarkable way. Many of the leading medical men of the time had passed through the Napoleonic wars and, in this rough school, had acquired a hard brutality, a supercilious indifference toward their patients which was sharply accentuated when it came to letting blood. This was particularly the case with Francois Joseph Victor Broussais (1772-1838), who had sworn at troops as a sergeant and had swung a cutlass as a privateersman during the Revolution with the same vigor with which he afterward wielded the lancet as an army surgeon in Napoleon's campaigns. Broussais, like John Brown, believed that life depends on external irritation, disease upon local irritation of some particular organ or viscus, usually the stomach and intestines. There was no healing power in Nature and it was necessary to abort disease by drastic measures. He therefore initiated an antiphlogistic or weakening régime which consisted in depriving the patient of his proper food and leeching him all over his body. Even in cases of extreme debility, at least five to eight leeches were prescribed, while thirty to fifty applied together constituted his usual treatment. Under the Broussais régime, leeches became so scarce in France that in the year 1833 alone, some 41,500,000 were imported, when less than ten years before, three million had been sufficient to supply all demands. Broussais was followed in this sanguinary practice by Bouillaud, who abused venesection by bleeding *coup sur coup*; by Dupuytren and by Lisfranc. Of Lisfranc, Dr.

Oliver Wendell Holmes, who was a medical student in Paris at this time, relates: "I can say little more of him than that he was a great drawer of blood and hewer of members. I remember his ordering a wholesale bleeding of his patients, right and left, whatever might be the matter with them, one morning when a phlebotomizing fit was on him. I recollect his regretting the splendid guardsmen of the old Empire,—for what! because they had such magnificent thighs to amputate."

In England and Germany things were not much better. The leading English medical journal of the day, founded in 1823, was called *The Lancet*. In Italy, Giovanni Rasori, at his clinic at Milan, became such another vampire for bloodletting as was Botallo in the sixteenth century. Like John Brown, Rasori believed that the treatment of disease consists in stimulating depressed conditions and in depressing states of excitement, and that venesection was not only an arm of treatment, but a means of diagnosis, indicating an excited condition if beneficial or, if injurious, a state of depression. Acting upon these conventions, he either bled his patients to death's door or else practically poisoned them with gigantic doses of saltpetre (sixteen to ninety grammes a day), gamboge (one to four grammes for diarrhea), aconite (134 grammes in a week, death supervening), digitalis, opium, camphor, etc. Now the effect of all this pitiless bloodletting and drugging was exactly like what General Grant said about the strict enforcement of an obnoxious law. It eventually annihilated itself and in the most natural way, through the introduction of a new method of precision in medicine—medical statistics. Although the Romans and perhaps the Hebrews, took the census and counted troops, while John Graunt, in the sixteenth century, studied the meaning of the birth and death rates, and Süssmilch, in the eighteenth, emphasized the moral significance of vital statistics, yet there were no true medical statistics before the time of Louis. Louis, like Laënnec, Bichat, and Pinel, was a man of finer mould and spirit than Broussais or Dupuytren, and touched to finer issues. Leading the austere life of a scientific enthusiast, divided about equally between the hospital wards and the post mortem room, he was the first to make real medical statistics, in which the separate items were not merely counted but of equal weights; and to emphasize the importance of what he did, it is worth while to quote at length from our principal authority upon French medical teaching at this time, Oliver Wendell Holmes.

You young men who are following the hospitals hardly know how much you are indebted to Louis. I say nothing of his *Researches on Phthisis* or his great work on typhoid fever. But I consider his modest and brief *Essay on Bleeding in Some Inflammatory Diseases*, based on cases carefully observed and numerically analyzed, one of the most important contributions to practical medicine, to the treatment of internal disease, of this century, if not since the days of Sydenham. The lancet was the magician's wand of the dark ages of medicine. The old physicians not only believed in its general efficacy as a wonder worker in disease, but they believed that each malady could be successfully attacked from some special part of the body—the strategic point which commanded the seat of the morbid affection. On a figure given in the curious old work of John de Ketam, no less than thirty-eight separate places are marked as the proper ones to bleed from in different diseases. Even Louis, who had not wholly given up vene-

section, used now and then to order that a patient suffering from headache should be bled in the foot, in preference to any other part. But what Louis did was this: He showed by a strict analysis of numerous cases that bleeding did not strangle—*jugulate* was the word then used—acute diseases, more especially pneumonia. This was not a reform—it was a revolution. It was followed up in this country by the remarkable *Discourse Upon Self-Limited Diseases* of Dr. Jacob Bigelow, which has, I believe, done more than any other work or essay in our own language to rescue the practice of medicine from the slavery to the drugging system which was a part of the inheritance of the profession. Yes, I say, as I look back upon the long hours of the many days I spent in the wards and in the autopsy room of La Pitié, where Louis was one of the attending physicians—yes, Louis did a great work for practical medicine. Modest in nature, fearless in the face of authority, unwearied in the pursuit of truth, he was a man whom any student might be happy and proud to claim as his teacher and his friend.

In Vienna, Skoda's therapeutic nihilism soon made short work of the "antiphlogistic" treatment of pneumonia by purging and venesection. In England, a vigorous assault was made upon the abuse of bloodletting by two well known authorities, James Wardrop, the surgeon, and the physiologist, Marshall Hall; while the manly and straightforward Charles Reade lent his splendid talents to the ridicule of the practice and landed many a clever cross counter, more especially in his enthralling story of *Hard Cash*. Charles Dickens has an amusing page on extensive leeching in *The Uncommercial Traveller*. Yet, in spite of all this marshalling of genius and talent against it, bloodletting still held its own in England until well after the middle of the century, when, under the influence of Sir William Jenner and Sir William Gull, it was discarded about 1860. Most of us have or have had relatives who went to the old country doctor every spring to have their veins opened. Even in the latest edition of Sir Thomas Watson (1870) it is still extensively indicated, and the buffy coat in the drawn blood was always looked for as a sign of inflammation. To be bled was regarded as a sign of a vigorous constitution, and Sir Richard Burton relates that, after the cholera epidemic of 1831, Englishmen lamented the disuse of the daily Lady Webster pill as a sign of decadence. Yet general bloodletting did gradually and surely decline after the time of Louis, for even such a rational substitute as the so called hemospasia of Junod, a method of producing a fainting spell by drawing blood from the brain to the foot, a species of bloodletting without letting blood, did not make any special impression, although the author asserted he had had most extraordinary success in many different diseases. The secondary reason for the gradual decline of bloodletting is probably to be found in the development of more refined methods of therapeutic procedure, such as the hypodermic needle, the many alkaloids introduced by Magendie, the coal tar products of the German chemists, good dietetic schemes, beginning with the pioneer work of William Beaumont, massage, hydrotherapy, electrotherapy, and other devices which emphasize the principal modern objection to venesection, namely, its extremely disagreeable character, both for the doctor and the patient. The very subject of bloodletting is, in fact, a disagreeable one. In modern practice, it seems like the plausible villain in the play, neither entirely good nor entirely bad. Its

true merits have been ably upheld by such authorities as Paget, Hughes Bennett, Sir William Broadbent and Sir Andrew Clarke, and it would seem to be of special value in such indications as the sudden dyspnea, coma, and convulsions of uremic seizures or of puerperal eclampsia, the severe pain in pleurisy or pneumonia, threatened asphyxia from cardiac embarrassment, aneurysm, or carbon dioxide poisoning, and in cerebral hemorrhage, actual or threatened.

Haviland and Hall,¹⁶ in a recent study of the subject, sum up the modern indications for bloodletting as follows:

"1. Cases of an apoplectic nature, especially when associated with coma and cyanosis. 2. Cases of high tension and granular kidney in connection with arteriosclerosis. 3. Cases of convulsions in the status epilepticus. 4. Cases of uremia. 5. Cases of sunstroke with asphyxia. 6. Cases of polycythemia. 7. In hemoptysis, if there be engorgement of the right ventricle of the heart. 8. In aneurysm for relief of pain. 9. In cases of dilatation of the right ventricle of the heart from what ever cause arising. 10. In cases of pneumonia, for relief of pain and dilatation of the right ventricle."

Pye-Smith states that its main indication is "cyanosis with distention of the right heart." In the ticklish matter of arterial hypertension, bloodletting is usually sneered out of court, on the ground that "it produces no appreciable fall of blood pressure till the amount withdrawn by the circulation has become so great that life is directly endangered by the operation." On the other hand, Knott argues that, whatever inferences may be drawn from laboratory protocols, human beings are not necessarily rabbits, guineapigs, or dogs of a larger growth, since "the effect of a cut head or even a barked shin or scratched finger on the arterial tension in the human animal is often very pronounced indeed and requires neither kymograph nor sphygmograph to demonstrate it."¹⁷ The intense thirst and copious water drinking which follow depletion would seem to make the bloodletting of the past a vague equivalent of "bloodwashing," in the sense of removing poisons from the system.

The history of therapeutics illustrates Cardinal Newman's belief that mankind is influenced by types rather than arguments, and not so much by ideas and pure reason as by prevailing fashions. The world has witnessed the rise and fall of many a drug and has seen bloodletting die hard. In spite of its long descent, we know little of its reason for existence beyond the notion that it may relieve states of tension and plethora or remove peccant humors. Yet there is hardly a physician with a good practice who may not suddenly encounter some circumstance in his experience in which venesection would turn out to be his sheet anchor and his patient's salvation. Even as the University of Minnesota has adopted the Renaissance idea of a botanic garden for teaching materia medica, or as experimental surgery is now taught upon animals at Yale and the Johns Hopkins Hospital, so it would be no bad plan if our medical schools used the Hindu method of inducting the student into the ancient practice of "breathing" a vein.

ARMY MEDICAL MUSEUM.

¹⁶*Westminster Hospital Report*, London, 1911, xvii, 1-21.

¹⁷See Knott, *opere citato*, p. 664.

POSTOPERATIVE DILATATION OF THE STOMACH.*

BY HARRY A. DUNCAN, A. B., M. D.,
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CASE. About January, 1911, the wife of a neighbor and good friend came to me complaining of soreness in the epigastrium, inability to wear anything tight about the waist, constipation, and lassitude. This condition was chronic, but acute attacks of vomiting, prostration, sharp pains in the right costal region, clay colored stools, and severe headaches occurred more or less frequently. She was thirty-seven years old and the mother of two children. I suspected gallstones and instructed her how to look for concretions in the stools after one of the acute attacks. A few weeks later she returned with perhaps twenty small stones which were undoubtedly gallstones. She still complained of the soreness, but refused operation. I gave her rather large doses of tincture of nux vomica and was surprised at the marked improvement.

In March, I was called to see her in one of the acute attacks of pain, fullness in the epigastrium, much vomiting of greenish fluid, and severe prostration. It did not resemble gallstone colic as the prostration was too pronounced, and there was no tossing about with pain, so I could not make a satisfactory diagnosis. No gallstones were found after this attack.

May 20th she entered the hospital and was operated upon the same day. The gallbladder was drained; though no stones were found, its walls were thickened and it contained some thick, syrupy, black bile. The stomach was examined and appeared normal. The right kidney was found near the pelvic brim, and after closing the incision the patient was turned on her left side and the kidney was fastened in place through a second incision.

The patient was on the table one hour, and eight ounces of ether were used. Her pulse was seventy-eight and the temperature normal one hour after being placed in bed. She had a comfortable night and voided twenty ounces of urine during the first twenty-four hours. The drainage was satisfactory and her condition continued comfortable until the morning of the third day, when she vomited a dark, brown fluid—there had been no ether vomiting—and complained of pain in the right side, and insisted on turning on her left side although this position interfered with gallbladder drainage. The urine was normal, but not over twenty-five ounces in quantity. An enema produced a profuse, dark, liquid stool. There was a circumscribed area of distention on the left side at the level of the umbilicus which gave a tympanitic note and suggested intestinal obstruction.

For the next three days the temperature remained normal, pulse 80 to 100, drainage satisfactory, vomiting of dark liquid each morning, liquid bowel movement of the same character, abdominal distention everywhere, but more marked on the left side, patient gradually becoming more restless, sleepless, hollow eyed, pinched in features, complaining bitterly of thirst; the urine was normal but scanty. Everything by mouth had been stopped and constant enteroclysis was done to overcome the thirst, but the fluid was not well retained. On the night of the sixth day she rested much better than usual. On the morning of the seventh day she vomited again what appeared to be several quarts, collapsed, and died within an hour.

An autopsy was refused but I followed her to the dead-house and reopened my incision. There had been no leakage of bile into the peritoneal cavity. I found the whole abdomen filled almost to bursting with an enormously dilated stomach. A part of the greater curvature near the pylorus presented at the incision. The stomach occupied also the whole of the true pelvis. I enlarged my incision, punctured the stomach, and drew off a gallon of fluid—only part of its contents—so as to give me a better opportunity for observation, and found that the duodenum was dilated to the size of my wrist to the point where it passes beneath the mesentery. Below this point the bowel, both small and large, was collapsed. I made an opening into the dilated part of the duodenum and passed my finger through the apparent constriction without

great force, yet there must have been constriction enough by the mesentery to separate an enormously distended duodenum and the markedly collapsed bowel. The point of constriction was definite and in no sense vague. Most of the collapsed bowel was in the pelvis, crowded there by the heavy stomach.

Some cases of fatal dilatation of the stomach following gallbladder operations or reposition of a floating kidney have been reported, but I am pretty well convinced that neither the operations nor the ether acted as the first cause in this case. I believe that the acute attack referred to as seen at the patient's home was really an attack of dilatation of the stomach, mild in comparison with this terminal attack.

It seems that in this case we may attribute the cause of dilatation to one of two factors, either a long mesentery with a heavy, empty bowel dragging on the root of the mesentery producing obstruction of the duodenum, or a paralytic distention of the stomach. It is not difficult to see how a dragging on the mesentery might produce temporary obstruction of the duodenum such as would cause the acute attack seen at the patient's home, and it is more than probable that, given this tendency with our patient in the dorsal position for three days, the stomach may have accumulated enough fluid and weight to force the intestines still lower in the pelvis and thus drag still more on the root of the mesentery and make the obstruction more or less complete and in the end fatal. Yet the dark fluid bowel movements occurring every day are evidence that the obstruction was not complete.

It is unfortunate that I did not at the time of operation examine the root of the mesentery. If the etiology lay in a stomach of poor nerve tone it would explain why the tincture of nux vomica benefited, and following operation a paresis of the stomach may have occurred, permitting it gradually to fill and then, by forcing the bowels down, constriction of the duodenum by the mesentery may have resulted secondarily.

I have seen acute dilatation of the stomach as a terminal feature in pneumonia, but it is probably more common as a complication in surgical conditions than is generally supposed. Last July I saw another case following bilateral salpingoophorectomy for pyosalpinx, but early recognition and prompt treatment soon gave relief.

This subject has received but little attention in this country. In 1859, Brinton discussed its clinical features. Campbell Thomson, in 1902, had collected forty-four cases, only some having followed operation. Neck, in 1906, recorded sixty cases. Recently, Laffer collected 217 cases in all. In 1907, Conner analyzed 102 cases. A brief epitome of his analysis is as follows:

Of the 102 cases three fourths developed during adolescence or early adult life. Females were affected in fifty-three per cent. of the cases. Forty-one per cent. followed operation with general anesthesia, the anesthetic in nearly all of these cases being chloroform. In a majority of the cases the symptoms of dilatation appeared in the first twenty-four hours. The anesthetic vomiting merged imperceptibly into that of the dilatation. Some of the cases did not develop for seven days after the operation. The chief symptoms were vomiting,

*Read before the Charity Hospital Association of Philadelphia, November 23, 1912.

pain, abdominal distention and tenderness, constipation, thirst, scanty urine, and rapid collapse. Seventy-four of the 102 cases ended fatally, or 72.5 per cent. Among the sixty-nine fatal cases examined, mesenteric obstruction was thought to exist nineteen times.

Conner states: "It is interesting in looking over the records of the reported cases of acute gastric dilatation to note that whereas the first case seen by most of the writers has passed unrecognized, subsequent cases observed by the same men have almost always been correctly diagnosticated during life. In other words, the condition is usually not difficult of recognition if the possibility of its occurrence be but held in mind."

The treatment is early and frequent use of the stomach tube, saline enemas and hypodermoclysis to overcome the loss of fluid. Because of the frequent occurrence of duodenal obstruction as the cause, a change of position from the dorsal to the belly or knee elbow is necessary to relieve the mesenteric constriction. Operation is of no value.

2721 NORTH LEHIGH AVENUE.

CULTIVATION OF *BACILLUS TYPHOSUS* FROM A SPOT IN A LUETIC TYPHOID SUBJECT AFTER THE FASTIGIUM.

By P. G. SKILLERN, JR., M. D.,
Philadelphia.

(From the William Pepper Laboratory of Clinical Medicine.)

The following case is of interest because of the infrequency of this examination clinically, and because of its diagnostic value in atypical roseolar rash and in cases modified by some intercurrent disease as, in this case, syphilis. It occurred in the service of Dr. Alfred Stengel at the University Hospital:

CASE. N. N., male, aged forty years, white, seaman, native of Finland, admitted October 7, 1912, complaining of weakness, having left a boat which had just arrived from Bombay.

On September 12th, nearly a month previously, while in the Mediterranean Sea, was overtaken with fever, malaise, diarrhea, loss of appetite, headache, and abdominal soreness. On admission he no longer complained of these symptoms, but said he felt very weak. An eruption appeared on body two weeks after onset of illness, and remained.

He contracted a chancre ten years previously. Was a heavy drinker and smoker. Had a fever which lasted four weeks after leaving Bombay. The water, which was taken on board ship at Bombay, was filthy.

Examination revealed a very profuse maculopapular eruption over most of trunk, arms, and legs, as well as on hands and feet and left cheek. This rash had the boiled ham appearance and symmetrical distribution of syphilitic roseola, and did not disappear on pressure. Lymph nodes palpable were the anterior and posterior superficial cervical, supraclavicular, left epitrochlear, and inguinals. An ancient scar, circinate in outline, was found posteriorly over neck and upper part of back.

Clinical examination of the blood gave a positive Widal reaction and a weakly positive (one quarter unit) Wassermann. Smears from the spots examined under dark field illumination showed no spirochete. Culture from the spots made by writer on October 15th gave a pure growth of typhoid bacilli, which agglutinated with serum from a known case of typhoid. Blood culture taken day after admission proved sterile.

On October 14th, a week after admission, the eruption

was fading, leaving a grayish discoloration, and on November 8th, the day of discharge, the spots on abdomen were very faint indeed. At no time during stay in hospital was the temperature over 100° F.

241 SOUTH THIRTEENTH STREET.

INFECTION OF THE GENITOURINARY TRACT BY *MICROCOCCLUS CATARRHALIS*.

By E. H. SITER, M. D.,
Philadelphia,

Department of Genitourinary Surgery, University of Pennsylvania.

The subject of the infection of the genitourinary tract, but principally of the urethra, by *Micrococcus catarrhalis* is a field that is comparatively unexplored, and the more I have looked into it, the more convinced I have become that the field is a wide one and one that should be more carefully looked into by the genitourinary surgeon. I think we are all too prone to consider most discharges, if not all, to be due to the gonococcus, and while it is usual to examine the discharge for the gonococcus, we are content with the finding of an intercellular diplococcus, and this finding with the urethral discharge makes the basis of our diagnosis.

A very interesting communication by Winfield Ayers, of New York, calls attention to this fact, and possibly the reporting of a number of cases which have come under my personal observation may add somewhat to the literature on the subject, which seems to be in negligible quantity. I have found in the majority of my cases that there had been no recent exposure, and not only had there been no recent exposure, but in a large proportion of the cases no previous Neisserian infection. Every genitourinary surgeon takes the previous history of his patients for what it is worth, but I have tried to verify the facts in most of my cases.

The microscope has also shown after most careful staining that while the organisms are not gonococci, they are diplococci. The clinical symptoms varied somewhat, but the only stable symptom seems to be a slight discharge of more or less mucoid character. The urine is not cloudy and shows no shreds. There are a few flocculi which float in the urine. The infection seems to be in the majority of cases an anterior one, and in only one case have I found any infection posterior to the cut off muscle, and this was in a patient who had never had a gonococcus infection.

The endoscopic picture shows a perfectly normal urethra. The cystoscopic examination is also negative, and in the one case where there was any involvement posterior to the cut off muscle the bladder was perfectly normal. The prostatic examination in all my cases has been negative. There has been no enlargement, and no seminal vesiculitis. The mode of infection is difficult to determine and does not seem to be entirely dependent on the presence of *Micrococcus catarrhalis* in the vaginal secretions, as a number have been examined after the infection of the male urethra.

The period of incubation varies from a few days to several weeks. This may not be accurate, as there is nothing to call the attention of the patient

to the condition except the discharge, and this is usually seen only by "stripping."

The best treatment of this infection I have found is a negative treatment. In other words, I have found that the less you do for these patients, the better off they seem to be, and spontaneous cure seems to occur. I have found a mild dose of the balsamics with the ingestion of plenty of water and no local treatment whatever to be the best means of controlling and curing the difficulty. I have tried the various silver salts, with the result that the discharge has increased. The least harmful I have found to be the sterile emulsion of silver iodide in five per cent. strength.

The following cases may illustrate the points mentioned:

CASE I. Man, aged forty-eight years, married, no history of specific urethritis. First noticed slight discharge one week previous when he consulted his physician, who referred him to me. There was no eversion of the meatus and no ardor urinæ. Urination was normal. Examination showed slight, whitish discharge. There were a few floating flakes in the first urine and the second was clear, and microscopic examination showed absence of gonococci, but diplococci in profusion. Endoscopic examination was negative.

Patient was put on emulsion of iodide of silver locally and small doses of balsamics. At the end of a week the condition was unchanged. The silver was dropped, and patient continued on balsamics. In four days the discharge had disappeared, and the urine was clear. Balsamics were continued, and the patient returned in a week with the discharge again visible. Weak solutions of nitrate of silver were now tried with the result that the discharge was increased. Silver was discontinued and balsamics continued. Discharge continued for ten days then ceased. There was no return in four months, and patient became normal.

CASE II. Man, aged thirty years, married four months. Had had slight discharge for one month. Had been under treatment. There was no previous venereal history. Present condition had been without symptoms except slight discharge, whitish and semimucoid in character. Discharge apparent only upon "stripping." Urine had a few floating flakes.

Microscopical examination showed diplococcus other than the gonococcus. Urethroscopic examinations were negative. Examination of vaginal secretions in relation to this patient showed the same diplococcus, but in the female there was no noticeable discharge and physical examination was negative.

Patient was given hexamethylenamine and salol with varying success, and the discharge became intermittent. After two weeks treatment was changed to balsamics and discharge disappeared. There had been no recurrence in several months and repeated examinations of the vaginal secretions failed to reveal any of the microorganisms.

CASE III. Man, married, no exposure, no previous venereal history, presented himself showing slight, whitish, mucoid discharge; had no symptoms other than this discharge; few flocculi in first urine. Microscope showed diplococcus.

Treatment consisted of balsamics internally and injection of iodide of silver five per cent. No change was observed after three weeks. Balsamics were continued and an astringent injection given. Discharge was increased, and in ten days injection was omitted and balsamics continued. Discharge was intermittent for several weeks. General tonics were substituted for balsamics and the disease cleared up in ten days.

Urethroscopic and cystoscopic examination as well as examination of prostate and vesicles were negative throughout this case. Vaginal examination of the wife of this patient was entirely negative.

I have observed a number of cases exactly similar to the foregoing, and I do not find that *Micrococcus catarrhalis* is at all harmful, and apparently it does not cause any complications. The only case in which I have seen any involvement of the pos-

terior urethra, and the only evidence of that involvement was the presence of flocculi in the first and second urines.

The literature on the subject is very meagre, particularly from the clinical side. Bacteriologists have recognized the organism, but the clinicians I find have passed over the subject very lightly, or have not touched upon it at all.

Eraud recognized the diplococcus resembling the gonococcus and found it in the normal male urethra. Winfield Ayers has found that *Micrococcus catarrhalis* is capable of causing a urethritis of more or less severity, and that if it is not recognized early and treated properly it is a dangerous infection, and that the urethritis caused by this organism presents an entirely different clinical picture. Watson and Cunningham speak of a diplococcus which has not as yet been differentiated from the gonococcus, and which is capable of causing acute urethritis differing from the Neisserian infection in its clinical course. Keyes recognizes the infection of the urethra by *Micrococcus catarrhalis*, but says it is probably insignificant and differs in its clinical aspect from the gonococcus.

Wood maintains that *Micrococcus catarrhalis* is rarely found in the urethra and does not give rise to acute urethritis clinically, but to a chronic or subacute process which resembles the gonococcus infection. He says that absolute distinction between the two forms of organisms can be made only by cultural methods. Libman states that *Micrococcus catarrhalis* is found in the urethra, and asserts that an absolute differentiation can be made only by culture. He maintains that when urethritis from catarrhalis infection is seen early, it is impossible to differentiate it from the gonococcus infection, and that clinically it runs the same course.

Micrococcus catarrhalis has been found pathologically in the conjunctive. It has been found in cases of pyorrhœa alveolaris, and in the sputum of patients suffering from influenza. It has been seen by Neisser in the examination of the sputa of whooping cough, and is found in the affections of the nose and throat. I have found from the bacteriological side that it is possible to differentiate these organisms only by culture, and that the microscope, while it excludes the gonococcus, does not give a diagnosis of *Micrococcus catarrhalis*. Clinically I found that the acute onset was so mild as to be unrecognizable by the patient.

In fact there are no subjective symptoms sufficient to call the patient's attention to the fact that there is a discharge, in which it differs obviously from the Neisserian infection. The only symptom we have to deal with is the discharge. I have not found any eversion of the meatus, nor any ardor urinæ. The urination is not more frequent, and the only symptom which is apparent is the presence of a discharge.

As to the treatment, tonics and genitourinary antiseptics seem to be the only treatment of value. Local treatment in my experience has been valueless, and if continued aggravates the condition. Silver in any form, either of the newer salts, or the nitrate, even if used in extremely weak solution, increases the discharge. The duration is not long, possibly six weeks, and I have found that two

weeks is the average time with, usually, recurrences.

I think the patient's general condition has as much to do with this infection as anything else. If the patient is run down and his mucous membrane is relaxed, he seems to be more prone to have this discharge than patients who are in a healthy condition.

My only object in calling the attention of the medical profession to this condition is that I think a great many of the so called chronic urethritis cases are in reality infections from *Micrococcus catarrhalis*, and if this is not recognized, the patient is treated vigorously, either with sounds or local applications, and the case drags on indefinitely. I think that if many of our so called chronic prostatic and chronic urethritis patients were subjected to a careful bacteriological examination that the entire absence of gonococcus would be determined, and if we went a step further and took a culture we should find that we were dealing with *Micrococcus catarrhalis*.

2038 LOCUST STREET.

Our Readers' Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXI.—How do you treat psoriasis, and with what success? (Closed February 15th.)

CXXXII.—How do you treat obstinate chronic bronchitis in the middle aged? (Answers due not later than March 15th.)

CXXXIII.—How do you treat influenza, especially in view of sequelæ? (Answers due not later than April 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXX was awarded to Dr. Arthur L. Fuller, of Colorado City, Texas, whose article appeared on page 454.

PRIZE QUESTION CXXX.

THE TREATMENT OF SUBACUTE AND CHRONIC LARYNGITIS.

(Concluded from page 456.)

Dr. M. Lubman, of New York, writes:

With the exception of the professional and specific forms, of which I will speak later, subacute and chronic laryngitis are always produced by continuity secondarily to some pathological condition existing higher up in the respiratory tract. The successful treatment of the diseases in ques-

tion, therefore, should commence from the nose downward, and any pathological condition in the respiratory path of the nose and pharynx down to the larynx must be removed or remedied. The conditions in the upper respiratory tract, which ultimately produce chronic laryngitis, are quite numerous—a deviated septum, a spur with a hypertrophied inferior turbinate occluding the nasal chamber, polyps, ethmoiditis, sinusitis, mucopurulent rhinitis, adenoids, hypertrophied lingual tonsils overhanging the epiglottis, and granular pharyngitis. It is of prime importance that any of these conditions, when found, be removed, for it can generally be stated "that any interference in the upper respiratory tract, causing mouth breathing, will ultimately produce a chronic laryngitis." The term "subacute" is quite a relative one, in so far as it means that either the obstruction is not great, or the patient does not neglect it to go on to a chronic form.

Having removed the causal factors, the condition of the larynx will improve proportionately. To complete the cure, the larynx proper should be treated locally.

The treatment of the larynx can be subdivided into three parts: Hygienic, local, and internal.

Hygienic. Attention should be given to any constitutional disorders. The use of an antiseptic mouth wash or gargle is strongly recommended. The patient should be instructed to use his voice moderately, to abstain from any alcoholic beverages, smoking, as well as from spicy food and strong condiments. He should sleep in a well ventilated room, and lead an outdoor life. A sea voyage will frequently be helpful in these cases. A change of climate is very beneficial; the locality depending upon the general health of the patient. For stout and plethoric people, Sharon and Richfield Springs in the United States have a beneficial effect; for those who are delicate and anemic, chalybeate and muriated spas may be recommended.

Local. Local treatment consists in applying certain drugs directly to the diseased mucosa of the larynx. The local application of remedial agents is accomplished by means of sprays, injections, inhalations, direct application with a cotton carrier, and insufflation. The tip of the spray must have a downward curve at right angles, and be carried well back behind the epiglottis before pressure is applied. The spray may consist of a solution of sodium bicarbonate and potassium bicarbonate of each ten grains to the ounce. For steam inhalation, compound tincture of benzoin (a teaspoonful to a kettle of water) may be used a few times a day. Care should be taken not to have any draught in the room.

A few precautions must be observed in the local applications. The cotton on the applicator should be wound up quite tightly. This is best accomplished by moistening the applicator in water, and then winding the cotton up firmly. The mirror, when heated, should be tested upon the hand of the applicator before it is introduced into the mouth of the patient, for a remark from the patient, "It is too hot," discredits the physician. The best way is to have the mirror soaped and wiped off. When used in this way, it serves the purpose very well.

The tongue should be pulled forward and downward with mercy, as sharp central incisors will cut into it, and the successful application will be interfered with. When the patient's pharynx is very sensitive, cocaine in four per cent. solution, applied locally, will alleviate this. The excess of fluid should be squeezed out from the cotton to prevent trickling between the cords where it excites a spasm of the laryngeal muscles. The remedies used for local applications are zinc chloride, zinc sulphate, copper sulphate, iron perchloride, resorcin, and Mandel's solution, which consists of

R Iodine, ...grs. vi;
Potassium iodide, ...grs. xii;
Oil of peppermint, ...m℥v;
Silver nitrate, ...ãã ʒi.
M. fiat solutio.

Of all the drugs enumerated, silver nitrate is still the banner carrier in chronic conditions. It should be started with a mild solution, about three or four per cent., and gradually worked up to a higher strength. If painful, cocaine should be applied first. The application should be made every other day, and diminished in proportion to the progress of the case. Argyrol in twenty per cent. solution may be used as a substitute; it is quite soothing.

Internal. Internal medication embraces the eliminators and absorbing drugs. The bowels should be kept open regularly with a cathartic, any gastric symptoms corrected, and tonics prescribed if the patient's condition requires it. Protoiodide of mercury, one eighth or one sixth grain, three times a day, after meals, is an absorptive agent. Muriate of ammonia with compound mixture of licorice will make the mucus less viscid. Potassium iodide internally is also given to help absorption.

The specific form of laryngitis should be treated constitutionally. Occupational laryngitis or "clergyman's sore throat" requires absolute rest, complete abstaining from use of the voice, and a change of climate. Couterets and Mont Dore in the Auvergne mountains have attained considerable reputation.

Other forms which are due to pressure or goitre or other growths, must be treated surgically and no time should be wasted upon local treatment.

Dr. Leopold Heimann, of Evansville, Indiana, states:

Subacute laryngitis. The predisposing causes are essentially the same as in acute laryngitis, and the treatment must be divided accordingly into constitutional and local.

When associated with inflammatory conditions of the upper air passages, pharyngitis and rhinitis, laryngitis must be treated in conjunction therewith. The patient, when possible, must remain in a warm room, and in severe cases must stay in bed and should refrain from using the voice as much as possible.

Free evacuation of the bowels is necessary with a saline aperient, given usually one hour before the early meal, which should consist of one or more glasses of hot milk. This stimulates the glandular activity and makes the expectoration of mucus easier. Some form of ammonia is indicated in moderate doses; ammonium chloride, five grain doses, is more palatable than the carbonate. Liquor am-

monii anisatis of the German pharmacopeia, in ten drop doses in one fourth glass hot milk, is an elegant preparation readily borne in this condition. When a disturbing cough is present, small doses of heroine or codeine may be cautiously used. This is sometimes the key to the entire situation; by putting the larynx at rest all inflammation is allayed. Local treatment consists of applying counterirritation over the larynx. A Priessnitz compress is very serviceable and when properly applied acts admirably, but should be used only when the patient is under complete control in the house, and it should be used only at night. The Priessnitz compress is an ordinary towel folded lengthwise until it is about three inches wide; wring out of cold water and apply directly to the neck. Cover this thoroughly with oiled silk. Over this place several thicknesses of flannel. Leave on from eight to twelve hours without removing, then give entire neck a gentle alcohol rub. These compresses can be repeated from night to night as often as indicated.

Locally any of the oily solutions should be used in an oil atomizer. Before using this I use an alkaline solution of

R Sodii chloridi, ...grs. xv;
Sodii biborati, ...grs. xv;
Aque destillata, q. s. ad.....ʒii.
M. fiat solutio.

Is must be used warm. This removes the mucus and any foreign material from the inflamed area. Follow this by any oily spray in an oil atomizer.

R Menthol, ...grs. x;
Camphor, ...grs. xv;
Albolene, ...ʒii.
M. fiat mistura.

This should be used every two or three hours. Some prefer a vapor solution, and much benefit can be derived by adding one teaspoonful of compound tincture of benzoin or a few drops of eucalyptol to a pint of water, over a gas or alcohol lamp or in any of the various vaporizers on the market. Often an old fashioned tea kettle serves admirably.

Constitutionally, syphilis, rheumatism, tuberculosis, etc., must be taken into consideration and treated accordingly. All alcohol and tobacco must be prohibited. The thyroid gland should receive attention, as an enlargement of this gland by pressure on the recurrent laryngeal nerves may bring about a huskiness of voice simulating a laryngitis.

Tonics should be given in some form. Strychnine, either hypodermically or internally, acts admirably in these conditions. Electricity should not be used.

When the patient cannot for any reason remain in the house, I follow the foregoing treatment as nearly as possible.

Chronic laryngitis is a chronic inflammatory condition of the mucous membrane and the submucous tissue of the larynx accompanied by a congestion and an increase of tissue. Every case is a law unto itself and must be treated accordingly.

Obstruction in the nose must be remedied, and cardiac and pulmonary conditions ameliorated as far as possible. Syphilis must be eradicated, alcohol and smoking prohibited, and a rheumatic diathesis must receive appropriate attention. Epsom salts in a glass of warm water, one hour before the

first meal, should be given daily as long as indicated. Small doses of effervescent sodium phosphate are far more acceptable to most patients when it is necessary to give a saline over a long period. This materially depletes the engorged and inflamed bloodvessels. An alkaline spray, used warm and followed by an oily spray, materially benefits this condition. The first removes the mucus and any débris, and the second tends to relieve the inflammatory condition. This is used by the patient every three or four hours. Once or twice a day apply to the entire mucous membrane of the larynx a twenty per cent. solution of argyrol. Some prefer a five per cent. silver nitrate or a zinc solution, but the former relieves and benefits most cases. If silver nitrate is used, it must be preceded by a five per cent. cocaine solution. Care must be exercised that none of the nitrate of silver enters the trachea and produces a spasm of the glottis. In cases of long standing, in which newly formed tissue is seen, large doses of potassium iodide or compound syrup of hydriodic acid give results. Some patients have an idiosyncrasy to iodine or any of its derivatives, which can be often overcome by small doses of belladonna.

When nodular growths are seen, these must be removed by the cautery or knife, but extreme precision must be exercised. Sometimes a recurrent chronic laryngitis is seen in elderly people who are not relieved by any treatment, and these, when possible, are greatly benefited by a sojourn in southern California, the eastern coast of Florida, or moist, warm climates.

Therapeutical Notes.

Treatment of Seborrhic Keratosis.—Montgomery and Culver, in the *Journal of Cutaneous Diseases* for September, 1912, state that where keratosis is present on a seborrhic skin in old persons, thick crusts had best be removed with the curette. Crystals of trichloracetic acid, or a saturated solution of it, should then be rubbed into the open surface thus produced. Better results may be secured with the acid than from solid carbon dioxide, and the effect is as good as that obtainable with the x rays. As a preliminary to employment of the crystals, they should be broken up with a few drops of water in a small dish. Cotton is then wrapped around the end of a probe, allowed to take up the acid, and applied, with rubbing, to the involved area. To arrest the action of the acid when necessary, water can be mopped on the lesion. The acid should, however, be left on until the surface has become white, i. e., for a few minutes.

Treatment of Intermittent Albuminurias.—Oppenheim in *Progrès médical* for October 26, 1912, observes that the orthostatic, cyclical, digestive, and fatigue albuminurias met with in childhood and adolescence almost constantly betoken the presence of slight renal weakness, generally in individuals predisposed to it through inherited rheumatic or gouty tendencies. Careful supervision of both the general and renal condition is required in these cases.

The diet should not be restricted to milk, but remain varied and ample, easily fermentable substances, however, being avoided. Moderate exercise in the open air, preferably in a mild climate, and reduction of mental work to a minimum, are desirable. A warm shower bath, followed by rubbing, should be taken morning and evening.

A half glassful of Vichy water should be taken for two weeks in each month, half an hour before meals. After meals, pills containing 0.75 grain (0.05 gramme) of lecithin may be taken, to the total number of five daily. In the alternate two weeks the following combination should be administered:

℞ Sodii arsenatis, ... gr. ss (0.03 gramme);
Iodi, ... gr. iss (0.10 gramme);
Sodii iodidi, ... grs. xv (1.00 gramme);
Syrupi aurantii, ... ℥iii (100.00 grammes);
Aquæ destillatæ, q. s. ad. 3x (300.00 c. c.).

M. sig.: One teaspoonful for a child six to eight years old, before dinner and supper; one dessertspoonful for older children.

In children exhibiting tuberculous tendencies, there may be substituted for the medicinal measures already referred to injections of sodium cacodylate, one half grain (0.03 gramme) daily, for six successive days, alternating with a like period of rest. In winter, codliver oil may be given by the mouth, and in the summer, the following powders:

℞ Calcii phosphatis præcipitati, ... grs. viiss (0.50 gramme);
Calcii carbonatis præcipitati, ... grs. iv (0.25 gramme);
Magnesii oxidi, ... gr. iss (0.10 gramme);
Sodii chloridi, ... gr. ¼ (0.05 gramme).

M. et pone in chartulam No. I.

Sig.: Take one powder before each meal in a half glassful of water.

In a number of instances there is evident lowering of the vascular tension. In these cases it may be advantageous to give one teaspoonful of a one to 10,000 epinephrine solution before breakfast on five successive days in each fortnight.

Where the albuminuria is clearly of the orthostatic type, rest in bed for some weeks should be advised at the beginning of treatment, and later a period of recumbency after each meal.

Treatment of Migraine.—R. Oppenheim, in *Progrès médical* for September 28, 1912, discusses in particular the therapeutic measures to be applied in the ophthalmic type of hemicrania. During the attack gentle and slow massage should be practised around the orbits, with especial pressure over the temporal arteries; or, a weak galvanic current may be applied. The following cachets should be taken every half hour until the estimated limit of safe dose has been reached:

℞ Antipyrinæ, ... gr. viiss (0.5 gramme);
Acetphenetidini, ... gr. iii (0.2 gramme);
Acetanilidi, ... gr. iss (0.1 gramme);
Caffeinæ, ... gr. ¼ (0.05 gramme).

M. ft. in cachetam No. I.

If antipyrine has already been found inefficient, from fifteen to thirty grains (one to two grammes) of potassium bromide should be given instead; or, cannabis indica may be employed:

℞ Extracti cannabis indicæ, gr. ¼ (0.015 gramme);
Acetphenetidini, ... }
Acetanilidi, ... } ..ana grs. iiss (0.15 gramme).

M. ft. in pilulam No. I.

In the intervals between attacks an important re-

quirement is to correct any ophthalmic disorder, especially errors of refraction, from which the patient may be suffering. To exert a sedative effect on the central nervous system, appropriate hydrotherapy and the ingestion of bromides are both indicated. The first should consist of the application of interrupted jets of lukewarm (32° C.) water to the entire body, except the head and neck, for two or three minutes, followed by a brief application of cold water to the feet. The bromide may be prescribed thus:

℞ Potassii bromidi, ...3iiss (10 grammes);
Sodii bromidi, ... }
Ammonii bromidi, ... } .ana grs. lxxv (5 grammes);
Sodii benzoatis, ... }
Syrupi aurantii, ...3ii (60 grammes);
Aque destillatæ, q. s. ad.....3x (300 c. c.).

M. Sig.: One tablespoonful before dinner and supper.

Gastrointestinal disturbances, according to Robin, play an important part in the etiology of this affection. To correct these conditions exercise in moderation and life in the open air will be of assistance. Mental fatigue and the use of tobacco are both to be interdicted. In the diet, restriction of the meats is especially to be insisted upon. Stimulating beverages of all kinds must be proscribed.

Each morning a half tumblerful of an alkaline solution, prepared by dissolving the following salts in a quart of water, should be taken on an empty stomach:

℞ Sodii sulphatis, ...3i (4 grammes);
Sodii bicarbonatis, ...grs. lxxv (5 grammes);
Sodii phosphatis, ...3iiss (10 grammes).

M. et pone in chartulam No. I.

Where constipation does not yield to these salts, the following combination may be used:

℞ Fluidextracti frangulæ, ... }
Fluidextracti rhamni pur- }
shianæ, ... } ..ana 5vi (25 grammes);
Glycerini, ...3x (40 grammes).

M. Sig.: One teaspoonful in a halfglassful of water before retiring.

Intensive Strychnine Therapy.—P. Hartenberg in *Presse médicale* for January 25, 1913, lauds the use of strychnine sulphate in ascending doses, hypodermically, for tonic purposes. He uses a one per cent. solution and gives initial doses of 0.003 gramme in women and 0.004 gramme in men. These are increased daily by 0.0005 gramme until the limit of tolerance is reached, as shown by a feeling of slight intoxication, mild vertigo, stiffness of the jaw, or rigidity in the lower extremities. This reaction generally appears at 0.005 to 0.006 gramme in women and 0.006 to 0.007 gramme in men. The same dose is then injected on successive days until the effects are no longer produced, when a further increase in the dose is begun, more gradually, however, than before, e. g., by 0.00025 gramme only, or less, according to the subjective condition. The dose may thus be increased to 0.01 or 0.02 gramme, which may even be repeated once or twice in a single day, for six hours after each injection all summation of effect disappears. Such medication is indicated in neurasthenic states. Far from causing restlessness, the injections quiet psychic activity, relieve anxiety, and restore sleep. In simple neurasthenia permanent recovery usually takes place in from ten days to

two weeks. In pseudoneurasthenia, however, the product of autosuggestion, and in mild forms of melancholia, frequently confounded with neurasthenia, strychnine is powerless, though harmless, and serves merely to point out the line of treatment to be followed, viz., suggestion. Other conditions in which strychnine is valuable are spinal and neural affections leading to hypotonia and atrophy, tabes dorsalis, cachexias, convalescence, tuberculous disease, etc. Contraindications are few, and in giving numerous injections the author has seen no untoward result. That there is no tendency to habit formation is shown in that the administration of 0.02 and 0.03 gramme doses could be abruptly broken off with impunity.

A Vehicle for Bromides and Iodides.—Milton Dunn, in the *American Journal of Pharmacy* for February, 1913, is credited with the statement that the Elixir digestivum compositum (N. F.), used principally as a vehicle, has not proved satisfactory as such. He suggests the following formula for a clove water which, he states, meets all possible requirements as a vehicle and is particularly efficient for the administration of bromides and iodides:

℞ Olei caryophylli, ...3i (4 c. c.);
Tincturæ persionis, ...3xiii (50 c. c.);
Alcoholis, ...3xi (43 c. c.);
Talcii purificati, ...3ss (15 grammes);
Aque, q. s. ad Oii (1,000 c. c.).
Misce et filtra.

Therapeutical Value of Cholesterin.—M. Roch, in *Revue médicale de la Suisse romande* for December, 1912, states that since very encouraging results have at times been obtained in severe anemias by the administration of cholesterin, its use should henceforth be indicated when cases of the pernicious type prove refractory to iron and arsenic. The substance is certain not to do harm and is by no means sure not to do good. It should be prescribed in daily doses of one to two grammes, in powder, cachets, or oily solution. In hemolytic jaundice cholesterin appears to have rendered service, though the reports have not as yet been sufficiently numerous to warrant a definite conclusion. In hemoglobinuric fever Audéoud has obtained good results with large doses—up to four grammes a day; in this condition cholesterin would appear to improve the tolerance of quinine. In infections, notably tetanus and bronchopneumonia, cholesterin seems to have been of service, though less definitely so than in the conditions where protection of the red corpuscles from harmful influences was the end in view.

Treatment of Wounds.—Demay de Cervant, in *Union médicale du Nord-est* for October 15, 1912, is credited with the following ointment for application to wounds:

℞ Iodi, ...gr. iii (0.2 gramme);
Potassii iodidi, ...gr. xv (1.0 gramme);
Adipis lanæ hydrosi, ...3v (20.0 grammes).
M. fiat unguentum.

The initial treatment consists of the application of fresh tincture of iodine, without previous washing. The wound is then dressed with gauze to which the iodine ointment has been applied.

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NEW YORK, SATURDAY, MARCH 8, 1913.

SOME REMARKS OF THE PRESIDENT.

In his inaugural address on March 4th, the President referred to problems that have confronted the medical profession in this country in a manner that seems to promise prompt and definite action. After complimenting the country on the way it had studied methods of production, the President went on to say that, on the other hand, neither cost nor economy had been properly studied, and he continued, in words which no physician can read without a thrill of pleasure:

Nor have we studied and perfected the means by which government may be put at the service of humanity in safeguarding the health of the nation, the health of its men and its women and its children, as well as their rights in the struggle for existence. This is no sentimental duty. The firm basis of government is justice, not pity. These are matters of justice. There can be no equality or opportunity, the first essential of justice in the body politic, if men and women and children be not shielded in their lives, their very vitality, from the consequences of great industrial and social processes which they cannot alter, control, or singly cope with. Society must see to it that it does not itself crush or weaken or damage its own constituent parts. The first duty of law is to keep sound the society it serves. Sanitary laws, pure food laws, and laws determining conditions of labor which individuals are powerless to determine for themselves are intimate parts of the very business of justice and legal efficiency.

DEMENTIA PRÆCOX; ITS EARLY DIAG- NOSIS BY THE GENERAL PRACTITIONER.

When we realize that from twenty to twenty-five per cent. of all admissions into asylums for the insane are those of cases of dementia præcox, and that the early recognition of this disease and its treatment increase considerably the chances of recovery, the importance of an early diagnosis becomes self evident. The need of timely recognition is further emphasized by the fact that, as its name indicates, dementia præcox is essentially a disease of youth, the deterioration of the mind being initiated precisely as the individual reaches the threshold of responsibility and usefulness. The specialist seldom sees such cases in their incipiency. The family, and too often the family physician, regard the mental phenomena as peculiarities of temperament, backwardness, stupidity, emotional indifference, loss of interest, etc., and it is only when the symptoms assume distinctly the characters of some familiar type or sign of insanity, mania, melancholia, delusions, etc., that the presence of a psychosis is recognized—too late often to arrest the morbid process.

Practical experience has shown that a sharp differentiation cannot strictly be drawn between the three forms of dementia præcox: 1. The *hebephrenic*, or essentially juvenile type, characterized usually by gradual enfeeblement of the mind, manifesting itself generally as a subacute, and occasionally as an acute psychosis; 2, the *catatonic*, occurring during adolescence or early adult life, characterized by a tendency to stupor, catalepsy, or periodical excitement, persistence of a single line of thought, unreasoning antagonism to all biddings, or the reverse, hypersuggestibility, etc., and tending toward dementia; 3, the *paranoid*, which may occur later in life, usually after the twenty-fifth year, attended by hallucinations and delusions, antisocial attitude and suspiciousness, and rapidly progressing mental degeneration. Certain phenomena, however, occur early in the history of most cases which are at least sufficiently marked to suggest the presence of a serious mental disorder. Prominent among these is emotional deterioration, the patient feeling neither joy nor sadness, and losing interest in his relatives, friends, pleasures, and, as a corollary to this, in his occupation, which he increasingly neglects. The flow of thought is impaired; incoherence becomes more or less evident, while a persistent reiteration of certain phrases begins to attract the attention of relatives and friends. Delusions of a depressed, hypochondriacal, and even persecutory type may also appear early in the disease, and be interspersed perhaps with outbursts of

senseless and sometimes destructive excitement, usually ascribed to "bad temper" or "changed disposition." These alternating outbreaks of depression, listlessness, etc., and exaltation have been regarded as strong presumptive evidence of the presence of dementia præcox.

In the presence of such phenomena, the general practitioner should procure an examination of the patient by a competent and experienced specialist in psychiatry, without mentioning the likelihood of the presence of a mental disease to any layman, even to the relatives, if possible, lest the financial interests of the patient be inadvertently compromised in the event of a favorable verdict; since a diagnosis of dementia præcox would place the stamp of insanity upon its victim even though the remedial measures instituted proved successful. Where a specialist or a psychiatric clinic cannot be reached, and the practitioner finds it necessary to assume the responsibility of the case, he should remember that he is dealing, in the light of modern work, with an adynamic toxemia leading to degeneration of the organ of thought as physical basis, and occurring, in most instances, in predisposed individuals. The essential aim, therefore, should be to counteract the cerebral degeneration by measures calculated to enhance nutrition. Overfeeding, outdoor life, tonics, and change of environment are the essential features of the line of treatment which has given the best results. The strengthened organism adequately converts its toxic wastes into eliminable products and thus rids itself of the main pathogenic factor of the disease.

THE DECLINE IN PRESCRIBING.

In an address before the Philadelphia branch of the American Pharmaceutical Association, Dr. Henry Beates, president of the Pennsylvania State Medical Examining Board, said that one reason why the druggists receive few prescriptions for galenical preparations is that physicians do not know how to formulate prescriptions, that they are ignorant of the exact therapeutic action of drugs, owing to defects in their educational training. Doctor Beates has had an extensive experience in the examination of candidates for registration as physicians, and his conclusions are, therefore, entitled to grave consideration. It is this ignorance of the exact action of drugs that has, in Doctor Beates's opinion, caused the medical profession to resort to so large an extent to ready made mixtures. According to this critic, even when a physician prescribes a drug he rarely knows exactly how it acts, but notes only that the patient gets better or worse. This is a very severe arraignment of the present day curricu-

lum, but it is one for which we fear there is more than a modicum of justification. Not that the teaching of materia medica is less efficient than it was twenty-five years ago, but this branch has been overshadowed by the increased attention paid to pathology, diagnosis, and other branches of the curriculum. Indeed, pharmacology has introduced a degree of exactitude in the study of therapeutic action not dreamed of a quarter of a century ago, but this is of the laboratory type, and the powers of clinical observation have not been correspondingly cultivated in the student. In many schools the tendency toward drugless therapy is reflected in the relegation of the study of materia medica to a less important plane than it is entitled to. We hope that Doctor Beates's criticism may prove stimulating to the schools that have fallen into this error.

That Doctor Beates's criticism of the lack of instruction in materia medica and therapeutics is justified, is shown by reference to the curriculum approved by the Association of American Medical Colleges, which provides only 240 hours for the study of pharmacology, materia medica, and therapeutics out of a total of 4,000 hours of required instruction, or only six per cent. of the whole. For therapeutics as such the curriculum provides only fifty-five hours, the remainder of the 240 hours in this division being devoted to pharmacology and materia medica. This certainly seems an inadequate proportion of time to devote to the important study of treatment.

MENTAL HYGIENE.

In all civilized countries the question of mental unsoundness in its various manifestations is engaging the earnest attention of the medical profession and to a lesser extent that of the laity. In Great Britain it is significant to note that a first attempt is being made to apply eugenic principles by legislation. During the past year a mental deficiency bill was introduced by the Home Secretary, some of the clauses of which are of a far reaching nature. One clause reads as follows: "Persons in whose case it is desirable, in the interests of the community, that they should be deprived of the opportunity of procreating children." Although the bill is only under consideration by the British Parliament, and although it is unlikely that it will pass as it now stands, the mere fact that such a measure should have been introduced is the straw which points the way the wind is blowing.

Indeed, in most countries of the world the problem of how to deal with those afflicted with mental unsoundness is acute and pressing. The situation in this respect in this country does not differ ma-

terially from that of other industrial countries. This is emphasized by the session of the Mental Hygiene Conference in New York recently and by the keen interest taken in the proceedings by members of the medical profession and by the general public. Dr. L. Llewellys Barker, professor of medicine in Johns Hopkins University and president of the National Committee for Mental Hygiene, spoke at this conference regarding Unsoundness of Mind a National Handicap, and in the definition of unsoundness of mind gave it a wide scope. He pointed out that the term does not only include those graver disturbances, insanity, imbecility, and idiocy, but also epilepsy, hysteria, hypochondria, and psychasthenia; even in conditions commonly designated as neurasthenia the mental functions usually are temporarily disturbed. Furthermore, he declared that society now recognized more than ever that problems of criminality, inebriety, vagrancy, prostitution, and pauperism were interwoven with problems of brain disorder. If it is granted that unsoundness of mind is prevalent in this and other countries to an alarming degree, then the problem before us is to devise means whereby its continuance may be checked.

For the prevention of insanity real reforms of social laws must be introduced. Provision for well born children is the especial province of eugenics. When we have been able to distinguish between good inheritance and bad, what steps shall be taken to perpetuate the one and eliminate the other? For the perpetuation of the good, education may effect something and selective mating may play a part, but this phase of the matter simply bristles with difficulties and we must proceed cautiously. With regard to the elimination of the bad, the eugenist's programme is fairly definite; that is to say, that measures calculated to check the output of the unfit are already in operation in certain States, but sufficient time has not elapsed to state definitely whether the result has been satisfactory.

So far as eugenics are concerned, we are on firmer ground, as external circumstances can be controlled more or less effectively. The influence of environment upon mental and physical health is enormous, and social reforms of every description can be introduced and enforced to the incalculable benefit of the race. Industrial conditions, for instance, can be vastly improved, and such conditions need improvement in all parts of the United States, not forgetting New York State. The question of the control of syphilis is a social reform which has been shirked and is being shirked, but is one which if grappled with vigorously would tend to decrease the toll of defective and insane to an unbelievable extent. In the meantime, a campaign of education

is required. By continued iteration the community at large will be led to comprehend that social evils lead to physical and mental ills, and that the wisest and cheapest policy is to do away with such evils.

CHOLERA IN THE BALKAN WAR.

M. R. Kraus reported to the medical society of Vienna (*Semaine médicale*, February 12, 1913), that he had been called to fight the cholera in the Balkan war and had found the hospital at Tchorlou destitute of beds, physicians, and nurses, while the cholera patients were not isolated. In the third army, at Tchataldja, there had been 30,000 cases of gastrointestinal disease, with 2,000 deaths, and, estimating the mortality at its lowest figure (forty per cent.), there could not have been fewer than 5,000 cases of cholera. Infection had taken place probably from the river, in which numerous corpses were floating. Kraus established nine bacteriological laboratories and undertook to organize the hospitals, measures for isolation, disinfection, etc. He isolated the infected patients, secured boiled water for drinking, and submitted an immense number of soldiers to preventive inoculation. By the end of January cholera was extinct.

Tincture of iodine had proved an admirable remedy for cholera, in doses of five drops three times a day, and after a few days of this treatment, cholera bacilli were no longer found in the stools. To prevent the disease from extending into Bulgaria, a rigid quarantine had been established and it was the intention to submit the entire population to inoculation. Deaths from disease were from two to five times as numerous as those from wounds, and it was in time of peace that precautions should be taken to spare the army the epidemics heretofore so common in war.

THE HABITS OF RATS.

The habits of the rat, on account of the rôle it plays in the transmission of plague, are of great interest. The short essay written by Dr. R. H. Creel, of the United States Public Health Service, which appears in the *Public Health Reports* for February 28th, will be of interest to our readers, especially as a knowledge of the subject is very important in properly devising rat proving methods and in carrying out successful extinction of these animals.

The author found, through his observations and experiments, that *Mus norvegicus*, while essentially a burrowing animal and not addicted to climbing or swimming, is nevertheless quite capable of doing either. It burrows readily in the hardest earth, even to the depth of two and a half feet, and can pass through, probably by gnawing, all wooden material, soft brick, or mortar. The black rat and *Mus alexandrinus* (at least in Porto Rico) do not burrow at all, but are very adept at climbing or jumping, and therefore are the species chiefly found in the rural districts, removed from human habitations. It is possible for rats to escape from ships anchored a quarter or even a half mile from shore and make a landing, the water being smooth and the

tide favorable. It is questionable whether rats under natural conditions would make the attempt, though unusual conditions aboard ship might determine this kind of migration.

News Items.

THE ATOM FROM THE MODERN VIEW-POINT.

The former definition of the atom as an indivisible portion of matter has been abandoned by the modern physicists like Sir J. T. Thomson, who finds in the atom particles which have only one seventeen hundredth of the mass of the lightest atom known. Our previous concepts of the stability of the elements have also been upset by the teachings of Sir William Ramsay, who seems to have demonstrated the transmutation of metals by producing lithium from copper. A further shock to the accepted dogmas of chemistry was given in a paper presented jointly by Professor J. N. Collie and Mr. H. Patterson at the February meeting of the Chemical Society in London, giving the results of a series of experiments with electric charges. These results indicated that the synthesis of the atom had been accomplished. If these results are confirmed, we shall have to revise radically our concepts of the constitution of matter.

WHAT IS A WHITE BLOOD CORPUSCLE?

Our readers, whether convinced or not, will be interested in the communication in this issue of the JOURNAL on The Metamorphosis of a White Blood Corpuscle. How many of them can corroborate or refute offhand the arguments of Dr. Thomas Powell?

Obituary.

PHILIP HANSON HISS, JR., M. D.,
of New York.

Doctor Hiss died at his home, Sixty-first Street and Madison Avenue, New York, after a year's illness, on February 27th, in his forty-sixth year. He was born in Baltimore in 1868, graduated in arts in Johns Hopkins University in 1891, and received his medical degree from Columbia University in 1895, being appointed assistant in bacteriology the same year, subsequently becoming instructor in hygiene and bacteriology, adjunct professor, then professor of bacteriology. He was also professor of hygiene in the Women's Medical College in 1898, 1899, and bacteriologist to the board of health, where he served three years. Doctor Hiss won wide distinction for his work on typhoid fever, erysipelas, and pneumonia, particularly in the investigation of immunity and cure, and with Zinsser was the author of a well known treatise on pathology. His name is associated with many ingenious technical procedures in pathological work. He is survived by a widow and two children.

New Laboratory for Experimental Surgery.—A laboratory for experimental surgery has been opened at the Flower Hospital and Medical College. Special courses in surgery are offered to graduates in medicine by Dr. A. L. Soresi, who has been appointed professor of experimental surgery and director of the laboratory.

Dr. Theodore C. Janeway to Lecture in Philadelphia.—On Friday, March 14th, the third lecture of the Rush Society will be given in Lecture Room B, New Medical Laboratories of the University of Pennsylvania, by Dr. Theodore C. Janeway, professor of the practice of medicine at Columbia University. His subject will be Nephritic Hypertension; Clinical and Experimental Studies.

Meetings of Medical Societies to be Held in Philadelphia during the Coming Week.—During the week ending March 15th medical organizations of Philadelphia will meet as follows: Monday, Samaritan Hospital Medical Society; Tuesday, Pediatric Society; Wednesday, County Medical Society; Thursday, Polyclinic Ophthalmic Society and the Pathological Society; Friday, Psychiatric Society and Northern Medical Association.

Society of Medical Jurisprudence.—At the regular meeting of this society, to be held in Du Bois Hall, New York Academy of Medicine, on Monday, March 10th, at 8:30 p. m., the paper of the evening will be read by Dr. Hermann St. John Boldt, on a Brief Comparison of Hospital Service in Germany and the United States, with a Reference to the Requirements to Practise Medicine. Professor Graham Lusk, of Cornell University, will open the discussion.

Alumni Association of the Lying-in Hospital.—A stated meeting of this association will be held on Wednesday, March 12th, at 8:15 p. m., at the Harvard Club. The paper of the evening will be read by Dr. Samuel M. Brickner on Practices and Superstitions of Obstetrics among Primitive People. The officers of the association are: Dr. H. B. Blackwell, president; Dr. W. L. Bradley, vice-president; Dr. D. J. Hamburg, editor; Dr. C. Frederic Jellinghaus, secretary-treasurer.

The Licensing of Midwives in Pennsylvania.—The medical profession of Pennsylvania is actively supporting the Richards Bill, now on the House Calendar, which provides for the licensing of midwives in the State. It is expected that there will be little opposition to the bill, as there is no desire on the part of those advocating the measure to stop midwives from practising. It is believed that these practitioners fill a useful place, and the only reason for having them licensed by the State is to lead to better work on the part of midwives generally, particularly in the prevention of blindness.

The Mary Putnam Jacobi Fellowship.—Our readers are reminded that applications for this fellowship of \$800. open to any woman graduate of medicine, must be in the hands of the committee on award by April 1, 1913, and must be accompanied by: 1, Testimonials as to thoroughly good health; 2, letters as to ability and character; 3, a detailed account of educational qualifications; 4, a statement of the work in which the applicant proposes to engage while holding the fellowship; 5, examples, if any, of her work, in the form of articles, or accounts of investigations which she has carried out. Emily Lewi, M. D., chairman, 35 Mount Morris Park West, New York.

Mental Hygiene Exhibit in Philadelphia.—Arrangements have been made to present in the City Hall of Philadelphia the national exhibit on mental hygiene which formed a part of the exhibits of the International Congress on Hygiene and Demography in Washington last September. This exhibit explains and illustrates the significance of insanity and mental deficiency in the United States, giving reasons for the apparent increase in mental impairment. It also shows the cost of caring for the insane, and the relation of immigration to the increase of sanity and feeble-mindedness in the United States. A valuable feature of the exhibit is the presentation of statistics regarding the nature, causes, and means of prevention of mental disorders.

Summer Course in Municipal Sanitation at Harvard University.—During the summer of 1913 Harvard University will offer a group of courses relating to the general subject of municipal hygiene and sanitation, which have been arranged with special reference to those who are teaching these subjects in other institutions, and furnish practical demonstrations of the principles of sanitation applied to actual problems. There will be thirty-six lectures on municipal sanitation, twelve on vital statistics, twelve on sanitary biology, a series of field excursions to various places of sanitary interest in the vicinity of Boston for purposes of practical work, and a series of exercises in the sanitary engineering laboratory at Pierce Hall. These courses, which should prove valuable to public health officers, will begin on June 30th and close on August 9th. The tuition fee for the course is \$30, and the laboratory fee \$10. Persons desiring to take the courses should write to Professor George C. Whipple, Pierce Hall, Harvard University, before June 15, 1913.

Philadelphia Medical Schools Raise Standard of Admission.—Beginning January 1, 1914, requirements for admission to Jefferson Medical College, Medical Department of Temple University, the Woman's Medical College, the Medico-Chirurgical College, and the Hahnemann Medical College will be raised to include one year of college credits in chemistry, physics, and biology. This action is in accord with the recommendation of the Medical Council of the American Medical Association. Colleges, which, as in the case of Temple University, do not possess such preparatory departments, will establish courses in this preparatory work under the supervision of its medical faculty. This raising of the standard will not affect students who are able to present equivalent credits from lay institutions in the scientific branches denominated. Furthermore, beginning with the same date, all the medical schools mentioned above, together with the University of Pennsylvania, which now requires two years of preparatory college work for admission, will require one year of hospital internship to meet the new requirements of the Pennsylvania State Board of Examiners. The new standards, therefore, impose six years of study, thus exceeding the requirements of the council of the American Medical Association.

Personal.—Dr. John A. Fordyce has been appointed professor of dermatology in the Medical Department of Columbia University, to succeed Dr. George Thomas Jackson, who resigned recently.

Dr. F. F. Wesbrook, dean of the medical department of the University of Minnesota, has been appointed president of the new University of British Columbia, which is being erected at Vancouver, and will assume his new duties at the end of the present college year. Doctor Wesbrook will be the first president of this institution, which will begin its existence with a very rich endowment.

Dr. Southgate Leigh, of Norfolk, Va., was elected president of the Tri-State Medical Society, of Virginia and the Carolinas, at the annual meeting of the society, held on February 19th, 20th, and 21st. Dr. E. Reid Russell, of Asheville, N. C., was elected vice-president of the organization.

Dr. John W. Russell resigned on February 27th as medical superintendent of the Matteawan State Hospital for the Criminal Insane. Dr. Roy L. Leak is at present acting superintendent of the institution, pending the appointment of a successor to Doctor Russell.

Dr. John Nesbit Scott, of Kansas City, Mo., a pioneer in x ray work in America, recently had his right hand amputated, as a result of its exposure to the x rays. It is said that nine physicians have died from the effects of the early stages of experimentation with x rays in this country.

Dr. F. Gregory Connell, of Appleton, Wis., is the new president of the Fox River Valley Medical Society; Dr. W. Webber Kelly, of Green Bay, first vice-president; Dr. T. A. Nadeau, of Marinette, second vice-president, and Dr. R. H. Sweetman, of Green Bay, secretary.

A complimentary dinner was tendered to Dr. William J. Robinson in recognition of his public activity as writer and lecturer, on Friday evening, March 7th, at seven o'clock, at the Hotel St. Denis, Broadway and Eleventh Street, New York. Dr. A. Jacobi acted as toastmaster.

Double Tuition Fees for Foreign Students at Prussian Universities.—It is reported that in the future all foreigners who matriculate for study in Prussian universities will have to pay double tuition fees, and that entrance requirements will be raised, especially in the case of Russians. It has also been suggested that the number of foreigners admitted to any Prussian university be strictly limited, as at the University of Munich, where they may not exceed three per cent. of the total number matriculated. The agitation against foreign students in German universities has been going on for some time, the German students complaining that they were being crowded out by the foreigners. The number of foreigners studying in the universities of Germany during the present session numbers 5,196, of whom 338 are Americans.

Smallpox in Kentucky.—At the request of the Kentucky State Board of Health the Surgeon General of the United States Public Health Service directed Surgeon Taliaferro Clark to proceed to Kentucky to investigate the smallpox situation and advise with local health authorities relative to its control. Surgeon Clark's reports show a rather widespread prevalence of smallpox in the northern section of the Green River watershed, the greatest number of cases having been reported from Daviess, Ohio, Grayson, and Butler counties. The disease is so mild in its manifestations that people are not afraid of it, which greatly increases the difficulties of the health authorities in the enforcement of quarantine regulations. The benign type of the disease also accounts for the failure to detect the earlier cases, as the outbreak had almost attained the proportion of an epidemic before the diagnosis of smallpox was made and cases were reported by local physicians. Fully ninety per cent. of the people in the territory investigated had not been vaccinated recently, and seventy-five per cent. had never been vaccinated at all. The refusal of the people to submit to vaccination and their violation of quarantine regulations make it a very difficult matter for the health authorities to get control of the epidemic. Fourteen persons in Butler county were indicted for breaking quarantine rules, but this resulted in the concealment of cases of smallpox, and in consequence the number of cases reported is only an approximate estimate of the actual number.

A Halt in Doctor Friedmann's Plans.—The subjoined letter has been mailed to Dr. F. F. Friedmann, of Berlin, by the Comitia Minora of the Medical Society of the County of New York:

*Dr. Friederich F. Friedmann,
Waldorf-Astoria, New York:*

NEW YORK, March 4, 1913.

DEAR DOCTOR FRIEDMANN: In response to your inquiry made on March 2, 1913, to the president and secretary of the Medical Society of the County of New York in regard to the method by which you may be permitted to demonstrate scientifically the efficacy of your tuberculosis treatment, the comitia minora of this society take this occasion to inform you that the public health laws of the State of New York prohibit the practice of medicine by any person not licensed so to do by the Board of Regents of the University of the State of New York.

The commissioner of Education of the State of New York may, in his discretion, on the approval of the board of regents, indorse a license or diploma of a physician from another State, provided the applicant has met all the preliminary and professional qualifications required for earning a license on examination in this State, and has been in reputable practice for a period of ten years, and has reached a position of conceded eminence and authority in his profession. Such an indorsement would permit the applicant to practise medicine within the State of New York.

In the absence of such an indorsement by the commissioner of Education, as provided by law, the comitia minora advise you that they will endeavor in every way possible to have the public health laws, regulating the practice of medicine, and prohibiting the practice of medicine by any other persons than those enumerated in the statute, enforced in all respects by the constituted authorities. The law also provides that anyone while actually serving without a salary or professional fees on the resident medical staff of any legally incorporated hospital is not within the prohibition of the statute.

The board of health of this city conducts various hospitals and clinics for the treatment of tuberculous conditions. The principal institution is Riverside Hospital on North Brother Island. There are other hospitals and clinics situated in various parts of the city and elsewhere, conducted under the jurisdiction of the board of health.

We assume that the board of health will consider your application to demonstrate to the medical staffs of one or more of these institutions the theory and method of your treatment, and we should recommend to the board of health that such an opportunity be afforded you under auspices and circumstances which will clearly indicate to the public that you are not practising medicine as the same is defined by law, but that you are engaged solely in a comprehensive demonstration, before competent medical men and under legal authority, of the scientific value of your treatment.

The Comitia Minora.

BROOKS H. WELLS, M.D., president;
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Pith of Progressive Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

January 18, 1913.

Epigastric Border Incision of the Chest for Stomach Operation.—H. Brun states that the modern attempts to make more radical stomach resections for carcinoma of that organ require more space and a larger area for entrance to the field of operation than is furnished by the traditional vertical incision. An excellent exposure of the whole upper region of the abdomen is given by an incision recommended by Brun. The skin incision begins below, on the right rib frame work, is continued to the ensiform process about two fingers' breadth away from the border of the ribs, then turns sharply to the left to the hollow of the stomach and is prolonged to the left and below, ending near the cartilages. The muscles are cut through with as much regard to the preservation of their fibres as is possible.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

January 7, 1913.

Spontaneous Cure of Basedow's Disease.—Grober relates a case of Basedow's disease in a woman, thirty-four years old, which is noteworthy for the fact that beginning suddenly and progressing rapidly the disease has retrogressed almost completely without treatment in the last four to six years. A simultaneous and rapidly progressing pulmonary tuberculosis may be the cause of this spontaneous cure, but positive proof of this pathological relation cannot be established.

Chronic Diphtheritic Infection of the Lung.—A. Schmidt reports the case of a woman, sixty-two years old, who has had a chronic cough with pus and mucous expectoration and periodical attacks of fever for the past ten years. Objectively there are symptoms of chronic, double interstitial pneumonia. From the sputum, clear cultures of the diphtheritic bacillus can be cultivated, but smears from the tonsils are negative for this bacillus. No tubercle bacilli have yet been found. The patient had evidently not infected her surroundings, which is to be explained by the nonvirulence of the bacilli.

Diagnosis of Perforating Aneurysm of the Cerebral Arteries.—R. Langbein describes the case of an artist, forty years old, who, having previously enjoyed good health, suddenly complained of headache, vomiting, and stiffness of the neck. There was a slight, double paralysis of the abducens. Lumbar puncture revealed a slightly blood tinged fluid under increased pressure. There have been four recurrences of these attacks. Positive Wassermann reaction of the blood and spinal fluid point to a syphilitic origin of what is probably a perforated brain aneurysm.

Late Infection of Ophthalmic Blenorrhea.—Créde and Hörder explain the circumstance that the newly born, although they are immediately separated from the mother and receive isolated care, have late infection of blenorrhea (ten to twelve days), by assuming that the gonococci find their way into the eyes during birth, but not directly into the conjunctiva, where they remain latent without

producing symptoms for a time longer than their incubation period. The Meibomian glands afford a good hiding place. The pus discharged from them produces the late secondary infection of the conjunctiva.

Treatment of Scleroderma with Cœliarin.—W. Kölle reports that continued treatment with the extract of the glands of the mesentery improves scleroderma surprisingly. After one and a half year of treatment the patient is almost normal again, and the process of the skin which had invaded the whole surface of the body remains only in spots.

Spontaneous Rupture of the Uterus during Pregnancy.—Beyer reports that a twenty year old woman pregnant in the fourth month, suddenly, without apparent cause, experienced severe colicky pains in the abdomen, meteorism, and stoppage of stools. In two days another colicky attack and severe collapse occurred, which pointed to internal hemorrhage. Laparotomy showed the abdomen to be filled with blood which had issued from a long tear in the wall of the uterus. Total extirpation was done, and recovery followed. The cause of the rupture was probably a pathological change in the wall of the uterus following a previous manual loosening of the placenta.

January 14, 1913.

Sources of Continued Increased Blood Pressure.—Schlayer examined 300 of these cases having more than 160 mm. Hg. blood pressure and found that eighty per cent. had positive kidney involvement which could be made out clinically; in 16.3 per cent. lesions of the kidney were only probable. Forty-six cases came to autopsy. In all of these there were definite anatomical signs of progressing kidney lesions. Therefore in every lasting overtension over 160 mm. Hg. kidney involvement should be suspected. The diseased kidney and continued increase of blood pressure are probably parallel symptoms of one and the same process, namely, an increased irritability of the sympathetic vasomotor system.

Elongated Mobile Sigmoid.—R. Kienbock, suspecting appendicitis in a patient suffering from persistent constipation and enlarged abdomen, had a careful Röntgen examination made with a bismuth meal and bismuth enema. A very long sigmoid was thus revealed, extending from left to right under the liver and up under the right hollow of the diaphragm.

Transmission of Infantile Paralysis by Fomites and Flies.—Josefson proves experimentally that the poliomyelitic virus fastened and dried on articles such as linen, etc., is still virulent for apes. The changes in the cord were of a degenerative character, but the noninfiltrating form also occurs during the process of a natural infection, as has been shown by Kling and others. The virus could not be detected on flies which had been in contact with children suffering from poliomyelitis.

Narcophin in Obstetrics.—T. Jaschke recommends this narcotic during very painful deliveries. A dose puts the patient to sleep without diminishing the force of the pains. An amnesia for labor has not been observed. In none of the forty-five cases

tested was there any unpleasant side effects to mother or child.

Injury to the Cruciate Ligaments of the Knee Joint.—R. Pürkhauer describes two cases of the very rare condition of the rupture of the cruciate ligaments. In both cases the lesions were of long duration, the characteristic symptoms being an unnatural mobility of the tibia and femur. The x ray showed small splinters of bone in the joint. This corresponds with all previous experience that rupture of the cruciate ligaments involves a splitting of bones. In fresh cases an attempt should be made to suture the severed ligaments.

January 21, 1913.

Hypophysis and Diabetes mellitus.—Simmonds describes a case in which two months after the removal of a carcinoma of the breast metastases were scattered all over the body, including the hypophysis, and an uncontrollable polyuria appeared at the same time. The posterior lobe was found to be entirely destroyed. This and similar cases prove conclusively that in man diabetes insipidus may be produced by trauma to the hypophysis. The pars intermedia probably plays the most important rôle in this affection.

Treatment of Oxyuris vermicularis.—B. Hildbrand believes that the best way of treating these cases is by the application of a salve consisting of camphor, quinine, and thymol (vermiculin), on and about the anus after it has been thoroughly cleaned with soap and water. The procedure is repeated after each defecation. Personal cleanliness is carefully attended to, nails and fingers being thoroughly cleaned before each meal. These regulations are carried out for two or three weeks. No irritation has been noticed from the use of the salve.

January 28, 1913.

Toxidermatoses Healed by Ringer's Solution.—E. Eichmann reports three more cases of cure of skin lesions accompanying pregnancy by the intravenous injection of Ringer's solution. Objectively and subjectively the symptoms cleared up beautifully. Since this method is absolutely harmless, it is preferable to serum injections. A vegetable diet is insisted on.

Salvarsan in Chorea gravidarum.—E. Härtel treated his case of chorea with an intravenous infusion of salvarsan two to three months before term. The patient was cured, no return of symptoms appearing, even after delivery. This accords with the report of ten previous cases in the literature. The method is to be recommended in severe cases of chorea gravidarum which have resisted all other measures. Thus an interruption of pregnancy may be avoided, the efficacy of this procedure being doubtful.

FOLIA UROLOGICA.

September, 1912.

Röntgen Diagnosis of Kidney Tuberculosis.—G. Soderlund reports three cases of kidney tuberculosis in which a definite diagnosis was made by the radiograph. In these cases catheterization of the ureters was impossible because of extensive tuberculosis of the bladder. The author believes in cases in which the kidney is totally destroyed, and

large masses of caseous material occupy its place, that the x ray is a valuable means of diagnosis.

October, 1912.

Abortive Handling of Gonorrhea.—H. von Feleky describes a method of abortive treatment of gonorrhea in which solutions are applied to the anterior urethra by means of a urethroscope: 2.5 per cent. of silver nitrate or ten per cent. protargol, argin, or albargin in glycerin. The application is repeated once or twice as is necessary. The patient also receives various local injections. The treatment is to be used only when the gonorrhea is in its earliest stages.

November, 1912.

Does the Finding of Tubercle Bacilli in the Ureter Catheterized Specimens Always Mean Kidney Tuberculosis?—Kielleuthner has, in three cases of lung tuberculosis, found tubercle bacilli in the urine, and has injected the urine into guinea-pigs in which tuberculosis developed. The autopsy showed no tuberculosis in the kidneys, ureters, bladder, prostate, seminal vesicles, or urethra. In these cases there is always an albuminuria. The presence of tubercle bacilli and albumin from one of the kidneys is not proof positive of a kidney tuberculosis. The kidney should not be removed with these findings as a basis. If its presence has been demonstrated on one side, the urine on the other side shows bacilli and albumin, but no pus and blood, one should not hesitate to remove the diseased kidney, as the author's experience shows that the albumin and bacilli disappear. Albuminuria, hematuria, and tubercle bacilli may, but do not always indicate kidney tuberculosis. The signs of a destructive process, the presence of bacilli, leucocytes, and erythrocytes, always indicate a surgical kidney tuberculosis.

Pyonephrosis tuberculosa occluda.—Smirnow says that this disease is of interest because of the rarity of the affection, as well as the great difficulty of diagnosing it early. The name dates from 1907, when O. Zuckerkindl proposed it. Pyonephrosis tuberculosa occluda develops after an obliteration of the kidney pelvis or the ureter. The latter is most frequently obliterated in the first section, near the kidney pelvis or in the last part near the bladder. According to the place of obliteration the clinical and anatomicopathological pictures differ. The perirenal and periurethral interstitial tissue can also be affected: the process has passed from the kidney to the surrounding tissue either by perforation of the pyonephrotic bag or by propagation along the lymph ducts. Sometimes a cold abscess is formed along the psoas and suggests an affection of the spine. The varieties of pyonephrosis tuberculosa occluda are: 1. The urinary bladder is tuberculous; at the place of the probably affected kidney a tumor of immense size is to be found (pyonephrotic sac), no catheter will pass through the ureter. The diagnosis is easy. 2. The bladder is normal. One ureter is impassable and on this side a tumor will be found on the place of the kidney; diagnosis is possible by the history and the symptoms of the other organs. 3. The tuberculous affection of the bladder is far advanced; cystoscopy is impossible; an enlarged kidney can be pal-

pated. Diagnosis is possible only by exploratory incision of the enlarged kidney, as this is quite frequently healthy and only hypertrophied, while the other is atrophic and shows a tuberculous pyonephrosis. In twenty-five cases of pyonephrosis tuberculosa occluda the diagnosis could be made with certainty before operation only in six or seven cases. The exclusion of the affected kidney in these cases can be considered as autonephrectomy, but never as spontaneous recovery! In neglected cases the other kidney also becomes tuberculous; therefore, early surgical intervention is necessary.

LYON MÉDICAL.

January 26, 1913.

Silent Areas of Pneumonic Hepatization and the X Rays.—E. Weill and G. Mouriquand, after studying numerous cases of pneumonia in children with the aid of the x rays, have reached the conclusion that a triangular cortical area of consolidation, discernable by radioscopy, frequently occurs in the complete absence of auscultatory physical signs. This is readily explicable on the basis of the newer views concerning the course of events in pneumonia, viz., that the initial stage is one of general infection, local manifestations appearing later. Occasionally these foci are only apparently "silent," for upon auscultation at the precise area found by the x rays to be involved, there may be noted a slight decrease in the vesicular murmur. In other cases, however, especially in infants, careful auscultation is without result. In a few instances the lesions remain silent throughout the course of the disease; in such cases the diagnosis is doubtful unless an x ray examination is made. These observations are taken to show that cases formerly labelled "central pneumonia" are in reality silent cases of cortical pneumonia; no central focus unrelated to peripheral consolidation was ever observed by the authors. The absence of auscultatory phenomena, moreover, does not imply that general pneumococcic infection is alone present at the time, since lesions may be demonstrable by the x rays. Knowledge of these facts permits of making an early positive diagnosis of pneumonia.

Salicylic Medication in Rheumatic Nephritis.—C. Lesieur, J. Froment, and Bussy assert that there should be no hesitation in continuing salicylates where nephritis appears as a complication in acute rheumatism. In two cases they report salicylic treatment clearly exerted a favorable effect, the renal phenomena showing a distinct exacerbation when the remedy was temporarily discontinued. The salicylate should be continued after the general and articular symptoms have subsided, and until the residual albuminuria, if there is any, shows no further reduction under the influence of the drug. Albuminuria or even well characterized chronic nephritis existing before the advent of rheumatism, should not be considered as an absolute contraindication to salicylates. The author's cases, in which the drugs were used, showed the advantage of temporarily discontinuing them in order to ascertain whether the added renal trouble is due to the rheumatism or the drugs, and also the degree of permeability of the kidneys—the ferric chloride test for salicyluric acid in the urine promptly turning negative in the favorable cases. Under the latter conditions, the salicy-

lates should be resumed at once and continued until the signs of added renal disturbance have disappeared.

February 2, 1913.

Nitrogen Coefficient of Blood Serum.—J. Courmont, Boulud, Savy, and Blanc-Perduet inquired into the relation of the nitrogen occurring in the form of urea and the total nitrogen in the blood in twenty-two cases, nearly all with some renal disorder. Previous observations that this ratio or coefficient was increased in cases of nephritis with urea retention were confirmed, but it was found that the coefficient may, on the contrary, be very low. The absolute quantity of urea present in the latter event may be either high or low. This circumstance shows that variations on the coefficient may arise, not only from renal disorder, but also from lowered urea production, probably due, in turn, to imperfect hepatic function.

PRESSE MÉDICALE.

February 1, 1913.

Plastic Operation on External Genitalia in the Male.—Bonamy and Dartigues describe an operation intended for the replacement of infiltrated skin over the penis and testicles, as in penoscrotal lymphangioma, by healthy skin from the posterior aspect of the scrotum. After removing the involved skin, up to an horizontal incision above the root of the penis, the remainder of the scrotum is carried forward and upward, a buttonhole made in it through which the penis is passed, the horizontal line of contact of the skin margins sutured, and the penis covered by a further plastic procedure. Careful hemostasis is required, and it may be advisable to make a counteropening for drainage at the most dependent part of the new scrotum.

Osteomuscular Dystrophy with Dwarfism.—L. Tixier and C. Roederer report four new cases of a dystrophic affection recently described by Hutinel, characterized chiefly by osseous changes partaking of the nature of both rachitis and osteomalacia, by a more or less marked functional disability of the muscles often out of proportion with the reduction in their size, and by stunted growth. The four cases ranged in age from 3.5 to ten years; three were of the same family. The affection develops insidiously, nearly always in breast fed children, and without relation to gastrointestinal disorders, such as are common in the etiology of rickets. As for the treatment, subcutaneous injections on alternate days, in one of the cases, of one c. c. of a one to 1,000 epinephrine solution was observed to exert a distinctly favorable effect on the muscles, though the stature was not increased.

February 5, 1913.

Action of Colloidal Copper on Blood.—H. Chabanier, L. Rollin, and E. Chabanier studied this question in the human subject as well as in rabbits. The red cell count and hemoglobin percentage were found to be lowered at first, returning to normal by the seventh or eighth day after the injection. The leucocytes showed a more abrupt decrease and a subsequent rise, about the third or fourth day after the injection, to a maximum over twice the normal number, followed, in turn, by a return to normal from the fifth to the eighth day. In the differential

count, the polymorphonuclears are at first increased, later the lymphocytes. These effects are similar to those produced by colloidal silver.

JOURNAL D'UROLOGIE.

October, 1912.

Prostatism without Prostate.—Marion believes that many so called cases of prostatism without prostate in reality are prostates very slightly hypertrophied. He believes that in these cases excision of the bladder neck with a portion of the urethra is the operation of choice.

Duration of the Evolution of Kidney Tuberculosis without Operation and the Causes of Death.—Raffin first discusses the report of Wildbolz, who concludes that without intervention most patients with tuberculosis of the kidneys die in the course of five years. About twenty per cent. live from five to ten years, and those who live beyond ten years are very few. The author reviews 168 nonoperative cases. Of these patients, fifty-three per cent. had died at the time of writing and forty-seven per cent. were living; 11.3 per cent. died the first year; twenty-three per cent. died between the first and the fifth year; 15.9 per cent. died before the end of the tenth year, and but three per cent. lived beyond the tenth year. The average age which men live is four years and ten months, while the average that women live is five years and five months. The author attributes this to the greater frequency of alcoholism among men, the necessity for harder work, and the location of tuberculosis in the genital organs. He believes that, according to his statistics, tuberculosis is not much more fatal in infancy than in adult life. The cause of death in his cases was in ninety-four per cent tuberculosis, in six per cent. other causes.

Pseudohealing of Kidney Tuberculosis by Conservative Treatment.—Heitz-Boyer's first patient gave a history of kidney pain and had, when seen, normal urine. The cystoscope revealed that the left ureter was obliterated by a cicatrix. The right kidney was functioning well. The patient gave a history of hematuria eighteen years previously and following this prolonged bladder trouble. The patient finally died of uremia. The second case is very similar. Heitz-Boyer believes that these are typical so called favorable outcomes in nonoperative cases of renal tuberculosis. The presence of the presumably healed, but in reality only shut off tuberculosis sets up a toxic nephritis in the other kidney.

November, 1912.

Bladder and Urethral Syphilis.—Bicot describes a case in which the patient gave a history of vesical calculus, which was removed, cystitis, retrovesical fistula, and diarrhea. The cystoscope showed many reddened and inflamed areas. The Wassermann reaction was positive. Mercurial treatment very rapidly cleared up the bladder condition.

December, 1912.

Mechanism of Chronic Retention in Prostatics.—Virghi divided prostatics from the point of view of retention into three classes: 1. Prostatics with hypertrophied gland without the retention. 2. Prostatics without increased volume of the gland presenting retention as the principal symptom of

prostatism. 3. Prostatics who have hypertrophy of the prostate and retention of urine. In the first type, notwithstanding an obstacle to evacuation, to the bladder, the patients completely empty their bladder. The author believes that reflex inhibition, the median lobe, valves of the bladder neck are all incapable of producing chronic retention, also that the power of contraction of the bladder muscles never entirely disappears. The obstacle caused by the prostate only contributes in causing the retention. The retention is caused by the decreased elasticity of the sphincter, which prevents complete evacuation of the bladder.

REVUE DE CHIRURGIE.

January, 1913.

Sterilization by Formaldehyde Vapor in Surgical Practice.—G. Gross and M. Barthélemy point out that while urologists have used formaldehyde for the sterilization of sounds and cystoscopes, surgeons, obstetricians, and general practitioners have failed to avail themselves of its valuable properties. They report experimental work and clinical experience which showed it to be in many respects superior to the methods of sterilization now in vogue. All porous materials placed in a formaldehyde vapor absorb the latter until saturated. At room temperature this requires twenty-four hours, at the expiration of which the material exposed is completely sterile and remains so, showing that the microorganisms have been not only inhibited but destroyed. Upon raising the temperature of the vapor to 45° or 50° C., sterilization is secured in half an hour; 55° C. should not be exceeded, as the formaldehyde then begins to decompose. The authors employ this agent for routine sterilization. The apparatus consists merely of metallic boxes, closing tightly, at a short distance from the bottom of which is a tray covered with powdered trioxymethylene; the latter, in turn, is protected with several layers of fine gauze, which prevent particles of the formaldehyde liberating powder from reaching the material to be disinfected when the box is heated. Surgical paraphernalia in daily use are sterilized with the warmed formaldehyde vapors, while other material is sterilized in the cold, being left in the box for forty-eight hours. Rubber gloves are in no wise injured by this procedure, as they are by boiling or steam under pressure. Instruments need not be boiled unless they have been used in septic operations. Suture materials not intended for resorption, and dressings, including protective silk, are easily sterilized without deterioration provided they are unrolled. One of the authors performed six hundred operations with all the materials used sterilized by formaldehyde, while F. Gross has done one thousand celiotomies and a like number of radical hernia operations with gloves thus treated. The results, which were entirely satisfactory, lead the authors to recommend the method for widespread use, owing to its simplicity.

Phlebitis in the Presence of Uterine Fibromyoma.—J. Duvergey states that phlebitis occurred in five out of 270 cases of fibromyoma of which he has records. The complication supervenes oftenest as the result of compression of a vein, generally the external iliac, by the growth, but may also occur in veins at a distance from the

uterus through the transmission of an embolus from an infected myoma of relatively small size. The clinical course in the first instance is insidious, with minimal fever and pain; in the second, however, there are high fever and sharp pain, and the condition is not likely to pass unrecognized. Turgescent varices in one of the lower extremities, especially if recent, constitute a valuable diagnostic sign. Where the surgeon is convinced that the phlebitis is due to uterine infection, immediate hysterectomy is indicated. Where, on the other hand, the condition is or appears to be due to pressure of the growth on a large vein, absolute rest in bed is generally the proper course.

Cecouretrostomy in Exstrophy of the Bladder.

—D. Taddei, after pointing out the difficulty experienced hitherto of avoiding ascending infection after ureteral implantation, describes a procedure which he has worked out on the cadaver and found to give good results experimentally. At a primary operation the ileum and ascending colon are severed near the cecum and joined by terminolateral or laterolateral anastomosis, preferably with the Murphy button. The openings into the cecum having been closed, an appendicostomy is done, a portion of the organ being passed under or in the muscle tissue, or subcutaneously, in order to favor continence. The cecum is then gradually aseptized by irrigations with silver salts through the appendicular lumen, and at a second operation the exstrophied bladder is removed, an elliptic portion of the trigonum, as in Maydl's procedure, or better, two discs of bladder wall including the ureteral openings, isolated and implanted into the cecum, an area on the inner and lower surface of which is brought up extraperitoneally for the purpose. Ureteral catheters are introduced during the operation, brought out through the appendix, and allowed to remain for some days in order to prevent the contact of urine with the lines of suture during this period.

BRITISH MEDICAL JOURNAL.

February 15, 1913.

Carcinoma of Colon.—Joseph Cunning calls attention to the fact that the cecum and ascending colon are supplied by a single artery, the ileocolic. In cases of carcinoma of this portion of the large intestine the plan to be adopted in operation is to tie off this artery at its origin from the superior mesenteric just at the lower border of the transverse portion of the duodenum. The peritoneum, fat, and lymphatic glands, the latter accompanying the artery, are then stripped from the posterior abdominal wall from the mid line, downward and outward to the cecum and ascending colon. The ileum is clamped eight inches from the cecum and divided. Clamps are applied to a convenient and movable portion of the transverse colon and this, too, is divided. After the division of the peritoneum to the outer side of the ascending colon the entire cecum and ascending colon can be removed, taking the draining lymphatics and adjacent tissues along with it without having cut through or manipulated the cancerous area. The ileum is anastomosed, side to side, with the transverse colon. The operation is practically bloodless.

Results of Excision of Hip Joint in Thirty-four Cases of Suppurating Tuberculous Disease.

—Charles A. Morton believes that recovery is very much quicker and the end results much better after excision of the hip together with thorough curetting of the diseased area and subsequent drainage until the discharge ceases, than is the recovery after the ordinary methods of fixation, etc. In the majority of his cases motion was present after complete healing, and in some this was almost as free as in the normal joint. So far as shortening is concerned the method of excision has no advantage over the fixation methods, and in some instances excision leads to greater shortening than is usually encountered after fixation. Certainly excision results in a great reduction in the liability to relapses.

Occurrence of Acute Pneumonia during Treatment with Arsenic.—E. Parkes Weber records such a happening in five children and suggests that the occurrence of acute pneumonia may be dependent in some way upon the taking of arsenic, as is herpes zoster. The cases all showed strikingly rapid recovery, and Weber suggests that the arsenic may also exert some favorable effect on the course of the disease. This raises the further question as to the possible therapeutic use of arsenic in pneumonia.

LANCET.

February 15, 1913.

Paths of Infection in Genitourinary Tuberculosis.

—K. Macfarlane Walker cites the observations that in cases of orchitis during mumps, variola, pyemia, typhoid, etc., in which there is a blood invasion by the bacteria, the lesions are chiefly in the body of the testis. On the other hand, in the case of the metastatic infection in gonorrhea the lesion is primarily in the epididymis. Similarly, experimental urethral infection in the rabbit causes metastatic infection of the epididymis in the case of the tubercle bacillus. Further, close study of the tuberculous lesions in human and experimental cases shows very suggestive indications of the dissemination of the disease by way of the lymphatics of the cord, and suggests that the infection of the epididymis is due to the fact that this is the first place encountered which provides a suitable soil for the lodgment of the bacilli. In man it is extremely rare to find evidence of tuberculous involvement of the testis or epididymis without also finding some tuberculous disease of the prostate or seminal vesicles. Usually the prostatic disease is farther developed and older than that in the testis. It is not uncommon to find tuberculous disease of the prostate without involvement of the testis or epididymis. The conclusions are that tuberculous infection of the testis is a descending process and that the course of the descent lies along the lymphatic channels. Similar observations have been made regarding the relation of tuberculosis of the prostate to involvement of the kidney or upper extremity of the ureter. There may be associated with the presence of a tuberculous focus somewhere in the body an increased permeability of the kidney epithelium with possibility of production of a bacilluria without actual disease of the kidney. On the other hand,

both experimentally and clinically, it seems that the most frequent site for primary genitourinary tuberculosis lies in the prostate or vesicles and that from here the bacteria are carried to the hilus of the kidney by means of the lymphatic channels.

Remote Results of Tonsillectomy and Tonsillectomy.—Harold Whale analyzes 290 unselected cases and concludes that the disadvantages of tonsillectomy are: 1. The liability of initiation of an infection. 2. Recurrence of the trouble for which the operation was performed except in the case of voice troubles, in which there is no greater tendency to recurrence than after tonsillectomy. The disadvantages of tonsillectomy are: 1. Risk of serious or dangerous hemorrhage at operation. 2. Risk of harmful subsequent deformity, such an adhesion of the posterior faucial pillar to the posterior pharyngeal wall. For any patient who requires operation, who has never had any voice trouble, and whose occupation depends upon the use of the voice, tonsillectomy should be urged with caution. Tonsillectomy appears to be the more dangerous operation, but, with the sole exception of voice troubles, is more likely to cure the patient permanently of the condition for which relief is sought.

Action of Scarlet Red upon X Rayed Skin.—J. O. W. Barratt experimented upon the ears of rabbits which had been exposed to the destructive effects of x rays from two to fifteen months previously. By injecting small amounts of the drug subcutaneously he found that it caused an extreme degree of epithelial proliferation such as occurs in the normal rabbit's ear similarly injected. This extreme proliferation was seen only in the case of ears which had been exposed to an incompletely destructive dose of the rays. When they had been exposed to a completely destructive dose and subsequently allowed to heal the injection of scarlet red was still an effective epithelial proliferant, but the resulting proliferation was less extensive and abundant.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

February, 1913.

Nature of Surgical Shock; Treatment.—W. Webster undertook a series of experiments to test the value of pituitary preparations in surgical shock, which necessitated some reinvestigation of the latter subject and a criticism of current views as to its nature and origin. His experiments were made on dogs and he finds: 1. Under certain circumstances a condition of depressed vitality occurs in dogs under operation, usually after a prolonged experiment under anesthesia, especially when the intestines are exposed and frequently handled. This depressed vitality is manifested by a lowering of the blood pressure and sometimes interference with respiration. 2. Compression of a large bulk of intestine raises the general blood pressure, although brisk handling of the gut causes a temporary lowering. These are transitory effects and not clearly connected with "shock." 3. As to whether increased escape of carbon dioxide from warmed and moistened intestine is an important feature in the production of shock, the results of the experiments are inconclusive, but the slowly progressive depression of vitality cannot be prevented by treatment of the warm saline with carbon diox-

ide. 4. In but few cases did stimulation of afferent nerves produce a lowering of the blood pressure, in none a condition resembling shock. 5. If anesthesia is not very deep, the abdominal incision may cause a lowering of blood pressure, which may be considerable and prolonged if the incision also is of this character. 6. A condition of shock develops after prolonged operative procedures when the intestines are exposed to air or moist warmth, or occasionally after very severe operative procedures which are of comparatively short duration, but which interfere to some extent with respiration.

Toxic Effects of Gasoline Fumes.—J. Guy W. Johnson bases his paper on forty-two cases of gasoline poisoning seen in the Montreal tunnel, and a few experiments on mice and dogs. The source of the gasoline fumes in the tunnel was a motor engine. As long as the engine was not running the ventilating apparatus was sufficient to keep the air fresh, but within an hour after the engine started the air would become foul, causing a throbbing and congestion of the vessels of the head, and, if continued, headache. The men affected collapsed suddenly and presented these symptoms in common: Suffusion of faces and hands; absence of most reflexes, except in those who had recovered consciousness; presence of conjunctival and pupillary reflexes; moderate dilatation of the pupils; pulse good, never over 110. All complained of severe headache, none had nausea or vomiting. Examination of blood taken from the men gave the spectroscopic bands for oxyhemoglobin, and showed absence of carbon monoxide. Samples of air taken from the tunnel consisted of natural air with traces of gasoline fumes and no carbon monoxide. Various other tests were made, as well as changes in the ventilating apparatus, but men continued to be overcome until the engine was removed. Rats and dogs shut up in the fumes of gasoline died with symptoms greatly resembling those shown by the men. The conclusions are that gasoline fumes are dangerous, the final outcome is very sudden, and gasoline engines are dangerous in tunnels where the ventilation is not extremely good and should never be used in such as are entered by means of a shaft.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 20, 1913.

Transfusion in the Treatment of a Ruptured Tubal Gestation Sac.—Robert M. Green reports two cases of ruptured tubal sac in which direct transfusion was successfully performed. Neither patient was moribund; both might have recovered without the transfusion, but the writer believes that without it the prognosis in both would have been fairly grave. It minimized shock, and expedited convalescence, even if it did not actually save life, and, while it would be unwise and unnecessary to advocate the employment of transfusion as a routine measure, it seems to be justifiable in properly selected, grave cases. The ideal method would be to have one operator begin the preparation of the donor's artery at the same time that another opens the recipient's abdomen, in order that the transfusion may be made immediately after the hemorrhage is checked, but when this is impracticable the

donor's artery may be exposed while the abdomen is being closed and transfusion performed by the usual technic into one of the cephalic veins, using an Elsberg cannula in making the anastomosis. In any event it is better to transfuse at the time of the laparotomy than at a later period, since it supplies the blood when it is most needed, combats the shock of the primary operation without involving additional shock, and obviates the necessity and disadvantages of a second anesthesia, without which it could hardly be performed. If Elsberg cannula cannot be used, it seems advisable not to apply a clamp proximally to the donor's artery unless the compression of the cannula proves insufficient to control the flow of blood. It also seems advisable not to mobilize the donor's artery completely until the moment when the anastomosis is made, in order to avoid troublesome hemorrhage from minute arterial radicles.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

February 22, 1913.

Vaccination and Local Anaphylaxis.—Joseph H. Barach calls our attention to an interesting phase of this topic, which he believes is not generally recognized and the explanation of which is almost unknown. A vaccination is made, and after a slight redness or perhaps a small raised papule lasting from one to three days, the entire effect of the inoculation seems to have subsided, and the case is recorded as one which failed to take. On revaccination, a fortnight later we obtain a "take," and the previous vaccination, apparently unsuccessful, becomes active and follows the same course of evolution as the revaccination. The writer explains this clinically on the grounds of local anaphylaxis. The first inoculation produces antibodies against the strange virus; it sensitizes the organism. At the second inoculation the virus is attacked by the antibodies, and in the attack certain "by products" are freed. These latter act as poisons and produce the anaphylaxis. When the initial dose is large, or when the protein and antibody are diffused throughout the organism, the anaphylactic reaction is constitutional.

Boiled versus Raw Milk.—Joseph Brennemann has made an experimental study of milk coagulation in the stomach, together with clinical observations on the use of raw and boiled milk. The use of boiled milk or of raw milk as a routine measure is not advocated by the writer, who believes that each has its indications. He shows that raw milk and boiled milk are clinically very different foods; that the most striking difference between them, experimentally, is in their reaction to rennin; that the casein of raw milk, unless so modified that it will not form hard, large coagula, is more difficult of digestion than that of boiled milk; finally that these differences should always be borne in mind in comparing clinical, therapeutic, and experimental results in infant feeding and elsewhere.

Etiology and Treatment of Acne.—Ernest D. Chipman is of the opinion that bacteria may be ignored as an etiological factor in acne unless occlusion of the sebaceous ducts is present. Except in the treatment of acne by vaccines the bacteriological flora is of no importance; if we are able properly to drain the ducts vaccine treatment will be unneces-

sary. According to the writer the logical treatment of acne is twofold; local treatment directed toward the proper drainage of the sebaceous follicles, and general treatment to develop increased tone in the skin.

Transduodenal Lavage.—M. Ernest Jutte reports eight cases of chronic diseases treated by transduodenal lavage. In this method, the aim is so to direct the irrigating fluid that it does not flow into the stomach, but directly into the bowel, thus avoiding the act of vomiting. A rubber tube is introduced into the duodenum; to locate its position some secretion is aspirated and examined as to its origin. The paraphernalia and technic are fully described by the writer, who considers the procedure less unpleasant than the passing of the stomach tube. This method has been used in the treatment of a large number of diseases which have been found to be due to the excessive absorption of the products of putrefaction and fermentation and include intestinal disorders of various kinds, rheumatism, gout, sciatica, arthritis deformans, functional cardiac disorders, arteriosclerosis, Bright's disease, catarrhal inflammations, insomnia, and various nervous and mental disorders. The only explanation of the good effects of the treatment is the removal of intestinal toxemia.

Death Following the Administration of Phylacogen (Schafer).—Franklin C. McLean warns the profession that the use of this remedy is not without danger. The writer reports in full a case in which death, in a well nourished patient, occurred after the intravenous injection of five c. c. of Schafer's rheumatism vaccine. Anuria developed with constant emesis and hiccough. During the first twenty-four hours cyanosis was prominent. Death finally occurred from hypostatic pneumonia.

MEDICAL RECORD.

February 22, 1913.

Effects of the Beerless Exchange on the Morals and Health of Our Soldiers.—L. Mervin Maus has watched the effects of alcohol on the mental and physical condition of army officers and men for more than a generation. He has never seen one whom it has benefited, but has observed its injurious effects, and has known hundreds of officers who were cut down in the prime of life, dismissed, or rendered useless and retired on account of drinking habits. The writer asserts that the army of today is abstemious compared with the drinking army of the canteen days. Those who state the contrary are ignorant of its previous history. The writer suggests that if the condition of the soldier is to be improved the War Department should place a premium on temperance through official recognition of the abstemious. It is not to be expected that alcoholism and diseases of vice will vanish from the army, if it is composed of beer drinking soldiers.

Paralysis of the Recurrent Nerve Due to Circulatory Lesions; Recent Therapeutic Measures.—J. W. Gleitsmann touches on the physiological aspects, and describes the condition of recurrent paralysis produced by heart lesions in general, in connection with mitral stenosis and aneurysm. In the line of therapy he describes the operations of Horsley, Mertens, and Grabower, the experiments

of Navratil, and also the latest procedure to lessen the distressing features of this condition as performed by Bruenings, who counteracts the atrophy and weakness of the paralyzed cord and restores its phonatory position by making injections of paraffin. Two applications are usually sufficient; in the first injections are made anteriorly, posteriorly, and in the middle. After five to eight days the interstices are filled out by the second series of injections.

Care of Speech Defectives.—E. W. Scripture observes that the treatment of stuttering by routine methods leads to failure and emphasizes the importance of proper training for all teachers engaged in this work. This training should be under supervision sufficient to keep them from making many mistakes, and the classes for speech defectives should be inspected at frequent intervals by medical experts. While speech defects have been divided into two groups, stuttering (often called stammering) and defective enunciation, his experience has shown that only about seventy per cent. of speech defectives belong to these two groups; it is not always possible to tell whether a child is a stutterer or not, nor is it easy to give a correct diagnosis in regard to defective enunciation. The supposition that the treatment of speech defects consists in some simple exercises is fatal to the success of the work. The writer reiterates the importance of examination and diagnosis by a medical expert, and suggests that the medical profession should provide proper clinics where speech defectives can be examined.

Large Doses of Antitoxine Given Early; a Means of Preventing Laryngeal Stenosis.—Louis Fischer believes that clinical experience has shown that effectual treatment consists in giving a large initial injection of antitoxine. In a severe case, from 10,000 to 20,000 units should be injected at the beginning; the result of the first injection will determine whether or no more shall be used. The writer's rule in intubation and extubation has been to avoid force and hurry. An antispasmodic (codeine, bromides and chloral, Dover's powder) is advised for twelve hours before intubation and for twenty-four hours after extubation. In severe cases of diphtheria 10,000 units by hypodermic injection are advised. If septic manifestations are evident, the most rapid relief follows the injection of 10,000 to 20,000 units into the median basilic vein.

ARCHIVES OF INTERNAL MEDICINE.

January, 1913.

Cysts of *Entamoeba tetragena*.—S. T. Darling reports cases of infection with *Entamoeba tetragena* in which were illustrated the production of cysts by this organism, its intermittency, the absence of cysts during acute symptoms, and their presence in formed stools long after the subsidence of acute symptoms. Infection in man appears to be the result of contamination of food with a small amount of fecal matter containing a great many cysts, during the first day or two after passing. The great importance of examination the stools of all convalescent and recovered patients with entamebic dysentery for cysts and thus detecting "carriers" is ap-

parent, for it is the cyst that is the infecting agent and not the large trophozoite.

Diagnosis and Treatment of Syphilitic Aortitis.—W. T. Longcope points out that the characteristic lesion of the aorta produced by syphilis is responsible for most aneurysms, about seventy-five per cent. of cases of aortic insufficiency in adults, many cases of dilatation of the aorta, and certain cases of angina pectoris. The infection of the aorta probably takes place in the secondary stage, but the process usually remains latent for a number of years, the average being from sixteen to seventeen. Syphilitic aortitis is probably a common cause of the presence of a positive Wassermann reaction in so called latent syphilis. Its early signs are, beside the positive reaction, precordial pain, slight dyspnea, attacks of paroxysmal dyspnea and angina pectoris, cardiac hypertrophy, increased pulsation of the neck vessels, and signs of aortic dilatation. The symptoms are temporarily or permanently relieved by repeated injections of salvarsan, though in certain instances, especially after large doses, they may be aggravated for the first forty-eight hours after injection.

Respiratory Functions in Pulmonary Emphysema.—C. F. Hoover reports observations affording direct evidence that the patients suffer from impaired ventilation of the lung alveoli, with consequent high carbon dioxide content of the alveolar air, rather than from a deficient intake and absorption of oxygen. None of the cases studied showed the slightest modification of the symptoms when pure oxygen was breathed.

Modification of Technic of Wassermann Reaction.—A. F. Coca and E. S. L'Esperance point out that in using an isolated lipoid "antigen" preparation instead of syphilitic fetal liver extract in the Wassermann test, spurious or "pseudoreactions" can be entirely avoided, without heating the sera, by not using more than one half of the hitherto prescribed amount of the "antigen." They have also found it possible to eliminate another source of error in the reaction, the "prezone phenomenon," by employing, in each test, descending quantities of the "antigen."

Chemistry of Renal Calculi.—Max Kahn finds that the large majority of renal stones are composed of calcium oxalate; sometimes it is their sole component. Uric acid and the urates occur in small quantities in all renal calculi, but it is rare to find one composed mainly of these compounds. The shape, color, and consistence of a stone are not criteria of its chemical composition. Gouty tophi are not always composed of uric acid or urates. In three concretions examined, a negative murexide test was invariably obtained.

Causes of Variation in the Platelet Count.—W. W. Duke reports clinical and experimental work which led him to believe that diphtheria toxine in large doses is immediately poisonous to the bone marrow, possibly also to the platelets themselves, and causes an immediate fall in the platelet count. Benzol in large doses and diphtheria toxine in sublethal doses cause first a rise and later a fall in the platelet count. Tuberculin in small doses, benzol in small doses, possibly also diphtheria toxine in very small doses act for a certain time only as

stimulants to the progenitors of platelets and cause only a rise in the platelet count. Low counts in diphtheria indicate a more severe toxemia than high counts, and low counts early in the disease a more severe case than low counts later on. The platelets are probably very shortlived bodies; the count can rise and fall with great rapidity.

ARCHIVES OF OPHTHALMOLOGY.

January, 1913.

Eye Troubles Caused by the Use of Hair Dyes.

—Juan Santos Fernandez says that all hair dyes in use at the present time are more or less toxic in effect, and may give rise, under certain circumstances, to general and local eye troubles. The injurious effects experienced are of two classes, inflammatory and toxic, although both may be present at the same time. The trouble may be only ocular in character, or it may affect the general system as well from the start. The dyes which do the most harm are those that contain aniline derivatives. These are the dyes most generally used, as they are very easily prepared. Fortunately, as the aniline derivatives are powerful colorants, a smaller quantity of the dye is necessary to produce the desired results, and there is therefore less danger to the eyes and the general health. As it seems to be impossible to prevent people from using hair dyes, he thinks that their manufacture should be regulated and suggests an act of the legislature placing the manufacture of hair dyes and similar cosmetics in the hands of chemists, or of other persons skilled in the use of drugs, whose duty it would be to use the least harmful substances and to mix them accurately. He has observed in the use of aniline preparations which are applied in shops where there is abundant water to wash off the excess of coloring matter, that the absorption was less frequent than when the application was made at home with less skill and insufficient rinsing of the hair. The practice of excluding the air from the head to obtain better color results increases the probabilities of absorption. The irritant action of many of the hair dyes gives rise to the formation of vesicles on the scalp, the dried fluid from which produces crusts and causes the hair to fall out in tufts. This condition is accompanied by intense itching of the scalp; general indisposition and lowness of spirits, followed by vertigo; slight renal disturbances are frequently seen, and sometimes albuminuria or even uremia may set in; cephalalgia, sleeplessness, dyspnea, delirium, arrhythmia, and vomiting may occur, and there is almost always edema of the face and eyelids. The ocular disturbances may at times be the only sign of poisoning and they may occur without pruritus or other skin disorders. He believes the skin to be the portal of absorption, because the irritation of the skin and the accompanying vesicles makes the process of absorption much easier. In most cases the effects are due to the nature of the coloring substance and the susceptibility of the user. The edema extends to the eyelids and is followed by chemosis, but in most of the cases observed the vision was not impaired and the fundus was not affected. As soon as the edema subsided the patients got well. He divides hair dyes into four classes: 1. Decolorizing (hydrogen peroxide); 2, vegetable

tinctures (less frequently used); 3, tinctures with metallic basis, in more common use, and including caustic potash, nitrates of silver and mercury, bismuth, acetates of lead and copper, nitric and sulphuric acids, and sodium hyposulphite; 4, tinctures based on aniline derivatives; most of the modern hair dyes belong to this class.

JOURNAL OF MEDICAL RESEARCH.

January, 1913.

Inhibition of Hemolysis by the Serum of Cancerous Individuals.—W. O. Sweek and M. S.

Fleisher briefly review the contradictory reports concerning the hemolytic activity of the serum of cancer patients when mixed with the corpuscles of lower animals. More recently an investigator found that the serum of patients suffering with cancer possessed markedly higher antihemolytic power than the serum of normal individuals or of those suffering from diseases other than cancer. Summarizing their experiments the authors find that the serum from eighteen cancer cases and twelve normal individuals was tested for its antihemolytic properties with lactic acid; eighteen cancer cases and twelve normal individuals were tested with oleic acid. In no case was any marked increase of the inhibitory power of the serum of cancerous patients evident. It appears, therefore, that the determination of the antihemolytic activity of the serum of cancerous patients cannot be used as a diagnostic method. Furthermore, there is no evidence that an increased antihemolytic activity exists in the sera of cancerous patients.

MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

January, 1913.

Effect of Oil of Orange on Gastric and Pulmonary Reflexes.—G. O. Jarvis, knowing from

previous experience and the work of Abrams that the nausea of ether anesthesia is intimately connected with reflex gastric dilatation, and remembering the prophylactic effect against nausea and vomiting shown by Gwathmey¹ to occur when oil of orange is given in combination with ether, tested the action of inhalation of the oil on the size of the stomach and its reflex of dilatation. In a young man with thin abdominal parietes the stomach was first outlined, ether in strong vapor inhaled for three and a half minutes, one hour after eating, and the stomach then again outlined; a well marked dilatation of the organ was found. Next day, a similar test was made, but with the preliminary inhalation of oil of orange; no dilatation occurred. To render the test conclusive, concussion of the ninth to the twelfth thoracic spines was practised, which produced dilatation. The conclusion was thus reached that oil of orange inhibits the nasal reflexes produced by ether when the latter is administered alone. It was also found that oil of orange partly suppresses the pulmonary reflex of dilatation produced by plugging both nostrils with cotton. Albert Abrams, in an addendum to the article, points out that the inhalation of oil of orange actually evokes a lung reflex of contraction analogous to that resulting from the hypodermic use of epinephrine. Ether alone inhibits ciliary motion, whereas the addition of orange oil to it augments this motion.

¹See editorial article, this JOURNAL for September 14, 1912: The Mystery of Ether Anesthesia.

Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.
*Thirty-eighth Annual Meeting, held at Chicago, Illinois,
October 22, 23, and 24, 1912.*

The President, Dr. LOUIS FRANK, of Louisville, Kentucky,
in the Chair.

Arteriosclerosis.—Dr. G. W. McCaskey, of Fort Wayne, Indiana, said the most important factor in the production of this disease was overstraining. This was a relative matter, depending upon the strength of the arterial wall on the one hand, and the blood pressure on the other. The various intoxications derived either from within or without played an important rôle. They might act either directly by producing anatomical changes in the structure of the vessel wall by causing an asthenic condition of the muscular structure of the media, or through the nervous and muscular mechanism of the vascular apparatus, raising blood pressure and causing overstraining.

Fibrosis and spasm were the two changes found in the arterial wall. The former was impossible of removal; the latter more or less completely amenable to treatment. The proper objects of treatment, therefore, were not to attempt the impossible task of removing fibrous tissue, but to overcome vascular spasm, conserve the failing myocardium in the later stages, and as far as possible to overcome auto-intoxication by rational measures. The best means for accomplishing these results must depend upon the individual case, especially the character of the dominant arterial change, whether fibrous or spastic, the stage in which the case came under observation, the degree of involvement of the heart, associated auto-intoxications, habits of life, etc.

If blood pressure was high, degenerative changes advanced, and the general aspects of the case threatening, rest in bed was the most important initial measure of treatment. The diet should be as near the minimum requirements of the body as possible. This was less important with regard to the starches and fats than the proteids. The storage capacity for the former was very elastic, and a slight excess would do no harm, provided primary digestion was normal. With the proteids, however, the question was quite different, as the kidneys were involved and should be saved all necessary work, and for the further reason that the very toxins were nitrogen containing bodies, the formation of which was favored by an excess of proteids. Vasodilators, iodides, and in advanced cases with failing hearts, digitalis and in certain cases, a special bath devised by the author at 100° F., the duration of which was gradually increased for one hour, were the general measures of treatment advocated. A special measure of treatment advocated in a group of cases in which the habit of cardiac hyperactivity was in excess of circulatory requirements and tended to keep up high blood pressure, was the use of aconite in increasingly hourly doses to the limit of tolerance or accomplishment of therapeutic results. With a strict hospital régime, the prognosis of even the very serious type of cases was not nearly so bad as we had been led to believe. He recalled a case in which serious attacks of angina pectoris, due to coronary disease, in a patient, sixty years of age, were completely relieved, and had remained relatively well for ten years.

Schafer's Vaccines.—Dr. B. F. Zimmerman, of Louisville, said a patient receiving a sufficient number of doses of the phylacogens to afford him symptomatic relief could not be assured of a complete recovery. After he had received a sufficient quantity to overcome certain acute or painful symptoms he would frequently express a desire to discontinue the treatment in which event, in all probability, he would suffer a return of the condition, all of which could probably have been avoided by a few more additional doses following the disappearance of acute symptoms.

In some cases he had found the subcutaneous injections ineffective. In such patients the intravenous administration would usually be followed by a prompt abatement of symptoms. In his experience this had been particularly true of chronic infections, and in such cases he employed daily increasing doses intravenously until the infections

were no longer followed by systemic symptoms. At no time, however, had he given more than ten c. c. intravenously at one dose. These remedies, as indeed all sera and vaccines, were intended to combat infection and not to effect changes in joints which had become altered or deformed by long deposits, except such changes in these deformities as would naturally ensue from the eradication of the infection.

It was too early to state definitely what the ultimate results of this method of treatment would be. He thought much depended upon the accurate diagnosis of cases and the administration of the vaccines until the systemic reaction no longer appeared. In cases where the subcutaneous administration failed to give results the intravenous method should be employed.

Proof of the Therapeutic Value of Tuberculin.—Dr. FRANCIS MARION POTTINGER, of Monrovia, California, said our motive, as clinicians, was so to use tuberculin that we might keep the body fluids well supplied with specific antibodies, and at the same time produce thoroughly controlled focal reaction which would produce the maximum stimulation of healing without producing an extensive congestion and so doing harm. If one was conversant with the proper doses, this could be done quite readily because the limitations of danger were somewhat wide: First, if tuberculin would stimulate the machinery of immunization and increase the amount of protective antibodies in the blood, we must expect this to manifest itself in the treatment of tuberculosis by a lessened tendency for the disease to spread. Resulting from this we expected fewer complications. Second, we expected tuberculin by its focal stimulation to favor healing of the focus, and as a result of this we expected a more rapid healing of the disease, and the improvement of whatever complications might be present, provided they were remediable; as, a result of both the increase in the immune bodies and the focal stimulation we expected to produce good results in more patients, to produce them more quickly, and to make the results more permanent.

Resistance of Luetic Red Cells to Cobra Venom Hemolysis and Value of the Reaction.—Dr. WILLARD J. STONE, of Toledo, stated that with normal red cells (four per cent. suspension) plus varying dilutions of cobra venom with one to 70,000 to one to 80,000, hemolysis took place in twenty-four hours. With luetic cells hemolysis was retarded or absent in dilutions varying between one to 15,000 and one to 40,000. The lecithin of luetic red cells was apparently not so freely available to unite with cobra venom to form the hemolysin as was the case in normal red cells. The resistance of luetic red cells to hemolysis with cobra venom was first described by R. Weil in 1909. It was a well known fact that syphilis attacked the lipid constituents of the body cells since less lecithin could be extracted from syphilitic tissues than from normal tissues. Apparently the luetic toxine after seven to eight weeks so affected the lecithin of the red cells as to render it less available to unite with cobra venom and the cells appeared more resistant. Possibly the cholesterol content of luetic red cells was increased, which might account for the resistance of hemolysis with cobra venom. It was well known that cholesterol might inhibit hemolysis. The reaction had been made the basis of a test for lues by him in 112 cases of syphilis. It was found that in secondary cases after seven to eight weeks the reaction was positive in 87.8 per cent., while in tertiary syphilis the reaction was positive in 83.4 per cent. In eighty normals and controls, including typhoid, purpura, diabetes, cancer, tertian malaria, pseudoleukemia, biliary cirrhosis with jaundice, and many exanthemata, the reaction was negative in all but one, a patient with transient morbilliform erythema. This was the first test made and might have been due to faulty technic, or the patient might have had latent lues. He had never been able to check up by further examination of this patient. The reaction appeared to have a distinct sphere of usefulness in latent syphilis, since the positive readings were considerably higher than with the complement fixation method of Wassermann. It was also of value in determining the extent of treatment, since the cobra venom reaction in a large percentage of cases, remained positive after the Wassermann reaction had become negative. The cobra reaction after disappearance under treatment might again become positive if the treatment had been insufficient. The

test was open to fewer technical difficulties than the Wassermann. Further experience in the hands of more workers might demonstrate the value of the test. In any case the resistance of leucic red cells to cobra venom hemolysis was an extremely interesting biochemical phenomenon and might be of value where the Wassermann test failed.

Cæsarean Section.—Dr. ASA B. DAVIS, of New York, stated that obstetric surgery shared the progress of general surgery, making it possible to perform abdominal Cæsarean section now with a maternal mortality of not more than two per cent. in clean uncomplicated cases and no fetal mortality. This method of delivery was easier than normal labor, for the child was not compressed. Better results than these may be looked for. Already some operators reported considerable series without mortality. Improvement in morbidity was well marked. The reduced danger made the operation applicable in a greater variety of difficult labors. Now it was an operation of election, coming into competition with other forms of operative delivery. Some form of contracted pelvis formed the greater number of indications for the operation, as eclampsia, placenta prævia, malignant disease of the cervix, old cicatrices of the cervix preventing dilatation, atresia or deformities of the vagina after ventral suspension, of fixation without progress of labor, marked disproportion between the fetal head and capacity of pelvis; accidental hemorrhage, moribund mothers to save the child, tonic contraction of the uterus, obstructing tumors, rupture of the uterus with living child, impacted face, chin posterior. In cases where the mother had been repeatedly delivered instrumentally, resulting in a still birth each time, prolapse of the cord in undilated cervix may be a suitable indication for the operation in well considered cases.

Doctor Davis reported 149 consecutive Cæsarean sections in twelve years, with the loss of seventeen mothers, maternal mortality in all cases, 11.4 per cent.; 152 children delivered, twins three times, twenty-five children stillborn or failed to live, a fetal mortality of twenty-three per cent; also seventy-one consecutive Cæsarean sections in the past two years, with a loss of four mothers, maternal mortality of 5.6 per cent. There were seventy-two children delivered, eight died or were stillborn, a fetal mortality of eleven per cent. He reported fourteen patients with eclampsia so delivered, ten lived, 71.5 per cent., four dead, a mortality of 28.5 per cent. Sixteen children were delivered, eleven lived, 68.8 per cent. Five children died or were stillborn, a mortality of 31.2 per cent.; twelve mothers were primipare, one para II, one para III, none was in labor. Sterilization of the patient was not practised. Repeated Cæsarean section had been performed twenty-seven times, eighteen the second time, seven the third time, one the fourth time, and one the fifth time. The best time to operate was at once after labor started, thus insuring a mature child. If one was sure of the duration of pregnancy, the operation might be done at one's convenience at any time near term. It was not necessary to wait for dilatation of the cervix. After operation it relaxed enough to allow ample drainage. This was noted in the primiparous eclamptics who were not at term nor in labor. Unless there were urgent reasons, he advocated performing only the Cæsarean section, allowing involution to take place and then, if necessary on account of tumors, malignant disease, etc., do such operation as was required. He prepared the patient as for any laparotomy, injecting ergot half an hour before operation to secure a tonic uterus. The operation was done by a short median incision wholly above the umbilicus, in the midline. The uterus was held up to this opening by an assistant pressing against the flanks. The uterus was opened in front midline from just below the fundus downward. It was closed by an interrupted layer of chromic gut sutures down to the mucosa, and this layer was buried by a continuous suture, so that no raw surfaces were left upon which adhesions could form. The uterus dropped into the lower abdomen as after normal delivery. Adhesions could not take place between it and the abdominal wound, which was high above it. He had not seen hernia in any of his high operative cases.

President's Address; the Teaching of Obstetrics.—Dr. LOUIS FRANK, of Louisville, said he often wondered if four years of study in a medical school really qualified one to undertake all the responsibilities of practice—the graver ones of medicine and surgery, and those which

came often in the still hours of the night—when not only one but two lives were dependent upon the skill of the attendant. In a long experience with recent medical graduates—in twenty years' observation of young hospital internes—he regretted to say that his belief was, it did not. In this department of work the American schools were far behind and this in what was one of the most important branches of our art. Obstetrics must be better taught and must be viewed from a broad standpoint. Williams had recently drawn attention to imperfect obstetric education and to the inability of many of our obstetric teachers. It would seem we had retrogressed, certainly there had been no advances. The branch was poorly taught and the practice as generally carried on was worse. Most obstetricians, both teacher and practitioner, had been deprived of, or surrendered such surgery as rightly and properly they should do. The surgeon of to-day should no more be called upon to do a primary perineorrhaphy, or other operative procedure in the lying in room, than to put on forceps, do a version, or an accouchement forcé; yet our obstetricians, for the greater part, assigned such work to the surgeons, not only in practice, but in teaching the subject. Our students must have better training, a larger actual experience, hospital training, and more rigid requirements before entering this field of practice.

Let us insist that the men who were to introduce our progeny into this world should be something more than "grannies"; that they should be not only obstetricians but obstetric surgeons. Here was a great field for our postgraduate schools, one which, if properly carried out with demonstrations and practical teaching of the requisite kind, could, with the abundance of material at hand in our large cities, fill a place far more useful to the profession and public alike than they at present occupied.

It must be confessed that our postgraduate schools, and even our surgical clinics, had been in many instances an inspiration not always for good. The mercenary spirit was still dominant in postgraduate schools of medicine, and these institutions rich in endowment though the large ones might be, and with ample hospital facilities and excellent men in their faculties, required investigation as to the duration of courses, the manner of their teaching, and the conferring of certificates; if necessary, they must be regulated. Specialists could not be made in six or eight weeks, yet certificates of proficiency were granted following courses of such duration, during which time the sole opportunity for qualifications had been to observe some seventy-five or one hundred operations and, for a fee, to do two or four operations with the assistance (?) of the tutor.

He urged special examinations for those members of the profession who desired to wield the scalpel, with additional requirements in an increased hospital experience for all specialists, surgical, obstetrical, and medical. Then recognizing as such those who were able to qualify as specialists, compelling them to adhere to such practice and not surreptitiously engage in work other than that for which they declared themselves particularly qualified.

Address in Surgery; Biological Interpretation of Abdominal Pain and Its Surgical Relation.—Dr. GEORGE W. CRILE, of Cleveland, said that the only types of infections that were associated with pain were those in which the infection might be spread by muscular action or those in which the fixation of parts by continued muscular rigidity was an advantage. The type of infection that might cause muscular action, when it attacked one region of the body, might cause no such action when it attacked another region. But, turning to the significance of abdominal pain, he considered a new viewpoint and a practical as well as fascinating one. He could best illustrate this point by referring to two cases. In the medical ward of the Lakeside Hospital several years ago there was admitted a man, seventy-eight years old, whose chief complaint was obstinate constipation. The abdomen was only slightly distended; there was no fever; no increased leucocytosis; no muscular rigidity; and but slight general tenderness. He asserted that he had lost weight and strength during the previous several months. A tentative diagnosis of malignant tumor of the large intestine was made, but free movements were secured easily and the surgeon abandoned the idea of an exploratory operation. The patient gradually failed and died without a definite diagnosis having been made in either the medical or the

surgical service. At autopsy there was found a widespread peritonitis, arising from a perforated appendix.

A child, several years old, was taken ill with some indefinite disease. A number of the ablest medical and surgical consultants of a leading medical centre thoroughly and repeatedly investigated the case. Although at last they could make no definite diagnosis, they all agreed that it surely was not appendicitis because there was no muscular rigidity and no tenderness. The autopsy showed a gangrenous appendix and general peritonitis. How could the absence of pain in these apparently anomalous cases be explained?

Among 8,684 abdominal sections performed by his associates Doctor Bunts and Doctor Lower and himself and in the Lakeside surgical service 923 were on the stomach and intestines; 725 on the urinary tract, 744 on the gallbladder; 2,130 on the female genital organs, and 3,988 on the appendix.

In a recent conference, after tabulating all their cases, they felt that certain conclusions could be drawn; that certain lesions of the viscera mentioned caused pain and indigestion; whereas lesions of the solid viscera caused usually no primary pain; that lesions of the hollow viscera causing no pain were rarely benefited by operation; that most cases of painful indigestion, if not duodenal or gastric ulcers, were exogastric; that the cause of the pain was the stimulus to muscular action; that pain was a damaging agency to health; that acute abdominal pain was usually surgical; that these phenomena obeyed a general biological law of adaptation; that the adequate stimulus of many of the phenomena acted through the brain; that when the brain was disconnected these phenomena disappeared and thus might the mortality and the morbidity be placed measurably further under the surgeon's control.

Address in Medicine; the Stomach from the Standpoint of the General Practitioner, the Specialist, and the Surgeon.—Dr. CHARLES G. STOCKTON, of Buffalo, said he had had frequent opportunity of observing the working of good and evil in the professional management of stomach diseases. This field was rich in illustrations because derangements of the stomach formed so commonly a part of pathological conditions starting in almost any part of the economy; because disease arising in the stomach often concerned directly the physician, the specialist, and the surgeon. Few regions more generously rewarded the correlated study of the physiology and chemistry, of psychology and general medicine, of special technic and wise surgery. Nowhere, now that the craze for oophorectomy and for fixation of the kidney had subsided, might one so often see the unhappy results of unthoughtful surgical interference; the failure from timid negligence of needed operative intervention; especially the evil consequence of early misunderstanding, misinterpretation, and subsequent mismanagement of cases. He reviewed a few conspicuously familiar, illustrated pathological instances arranged in three groups.

A case of unrecognizable tuberculosis, with gastric irritability. A specialist after analysis of stomach contents, recognized a gastric neurosis and treated it by lavage and restricted diet. Improvement was not forthcoming, so a surgeon was invited. He saw a reflex, secondary to chronic appendicitis, and removed the innocent organ. Following a brief period of improvement, the result of psychic impression and suggestion, the case marched on; there was now fever, cough, expectoration, heralding infiltration, softening, and vomiting. Now this was a case for general medicine, not one for specialist or surgeon; yet it might have been, and both these might better have studied the case jointly with the family physician until the diagnosis was established.

Illustrations showing the need of the specialist and in which the general practitioner and the surgeon were inadequate were present in the following group:

A case of gastric atony, with anemia, emaciation, and mental depression; with constipation, slight hepatic derangements, tenderness, and recurring bilious attacks. The general practitioner perceived the denutrition, yet harmed the patient with superalimentation and chalybeates. A surgeon, noting the gastric distress, the moderate motor insufficiency, the colonic stasis, and the disturbed liver, felt that the primary fault was an infected and irritable gallbladder, and drained the useful organ with no worse effect than making it small, limiting its move-

ments, and binding it by adhesions to the surrounding parts. In fact, the case was one for the skillful specialist, who by local treatment, carefully suited diet, and general development of the patient, in the end relieved the symptoms; then, by educating the patient as to his dietetic limitations and necessities by teaching forbearance, willingness, and waiting, had the satisfaction of seeing him restored to reasonable health.

Their defeats might often have been converted into victories had they adopted the sensible and uplifting course of united, closely knit effort in the diagnosis and management of cases. Yet more, the spirit of modern democracy, which well might flaunt the old French legend, liberty, fraternity, and equality, had invaded the profession. With its spread there would come, at least temporarily, an enormous advance in mediocrity and self sufficiency; higher medical education could not stop it; at best it could only hinder; at worst, it would accelerate it. Legislation could not control it. The remedy lay in the united stand for a higher ideal, for a better sentiment; in an actual, not nominal, getting together in their work. The management of an important medical case was a responsibility suited to a carefully selected committee, not to an individual who represented but one side of the truth; not to the staff of one of those clinics, whose subalterns were subsidized for the magnification of a single phase of medicine.

Experiences in Spinal Surgery; Sixty Laminectomies for Spinal Disease.—Dr. CHARLES A. ELSBERG, of New York, presented observations based upon sixty primary laminectomies, twenty-two for tumor, nine for section of posterior spinal roots, four for inflammatory bone disease, five for old fracture of the spine, two for syringomyelia, one for intramedullary cyst, one for aneurysm of spinal vessels, three for a peculiar disease of the cauda equina, and thirteen exploratory.

He showed that the dangers of a laminectomy should be very small, but that spinal surgery was a special field demanding special training and experience. After considering the technical aspects of the operation, it was his belief that the value of the Wassermann reaction in making the indications for operation in spinal disease had been overestimated. In several instances a glioma was found at operation in patients with a positive seroreaction. It was almost as great an error to allow a patient with a possible spinal tumor to become totally paraplegic while anti-syphilitic remedies were being tried, as to allow a patient with a possible specific brain tumor to become blind while mercury was being given. The correct diagnosis of the level of the lesion should usually be made, but one must not forget that a stasis of fluid above the lesion may give level signs above the true level. Secondary degenerations might rarely cause a shifting upward of the level signs.

The supposed danger from the sudden escape of cerebrospinal fluid during an operation was not great; the speaker had never seen any symptoms in his patients. Retention of urine might occur after a spinal operation, but the frequency of its occurrence was in direct proportion to the injury done to the cord. A very marked abdominal distention often occurred after laminectomy in the lower dorsal region.

After complete laminectomy, the function of the spine was fully recovered because the main support depended upon the vertebral bodies. As many as seven spines and laminae could be removed and perfect function of the spine recovered. Some stiffness and rigidity might remain for a few months, especially after operations in the lower dorsal and lumbar regions. Free mobility was most quickly recovered after laminectomy in the cervical region.

He considered the surgical aspects of old fractures of the spine, and showed by a report of cases that the results of operations for old fracture of the spine with evidences of compression of the cord, were little short of brilliant. Ultraconservatism was indicated in fresh fracture of the spine, and only few patients should be subjected to an operation. But in the patients in whom symptoms appeared only weeks or months after the injury and in patients in whom there was improvement at first and stationary symptoms persisted, a decompressive laminectomy should be done. Marked angulation of the cord could be straightened out, intramedullary cysts drained, etc.

Laminectomy for decompressive purposes was often indicated; the opening of the spinal canal might, and often

did have a profound effect upon the spinal cord, which might act beneficially upon some spinal diseases whose nature was as yet not understood and whose pathology was unknown.

The removal of an extramedullary tumor of the spinal cord was one of the most satisfactory operations in surgery. The operation could usually be done in less than one half hour and the danger was small. Two stage operations were indicated in intramedullary growths and in the giant tumors of the roots of the cauda equina. The treatment of localized intramedullary tumors by the method of extrusion had opened up a new field. It was both feasible and safe to incise the cord in order to allow of the extrusion of intramedullary tumors, to empty cysts of the cord, for decompressive purposes in infiltrating growths and in spinal gliosis.

(To be concluded.)

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Principles of Human Physiology. By ERNEST H. STARLING, M. D., F. R. C. P., F. R. S. Philadelphia and New York: Lea & Febiger, 1912. Pp. xii-1423.

When the dimensions of this work, over fourteen hundred pages, are considered, the reader, especially if he is a student or a practitioner, can hardly fail to be appalled. Yet Professor Starling's book embodies considerable matter which is reviewed either cursorily or not at all in the average textbook. The structural and energetic bases of the body, for example, occupy nearly two hundred pages, but these will be found exhaustive from the standpoint of physiological chemistry. The newer conceptions concerning the structure of proteins, the energy of molecules in solution, the properties of colloids, the electrical changes in living tissues are also included among the subjects considered at length. Special physiology receives its due share of attention notwithstanding the wealth of details that the more recondite subjects contain. It is a matter of regret that the author saw fit to introduce no references in the text for the benefit of those who are specially interested in physiology. The book is excellently printed on thin paper, a feature which reduces its bulk to convenient limits.

Microbes and Toxins. By Dr. ETIENNE BURNET. With a Preface by ELIE METCHNIKOFF. Translated from the French by Dr. CHARLES BROQUET and W. M. SCOTT, M. D. New York and London: G. P. Putnam's Sons (The Knickerbocker Press), 1912. Pp. xvi-316.

A work on microbiology by an investigator connected with the Pasteur Institute, of Paris, a colleague of Metchnikoff, especially when ably translated, cannot but command a favorable reception in this country. Beginning with a study of the general functions and the transformation cycles of carbon and nitrogen in which certain bacteria play such a prominent part, the author then describes their rôle in the human body. Here each organ is taken in turn and its microbial flora briefly described. The specific characters of animal and vegetable organisms are then reviewed in turn, including in some instances a feature now attracting special attention, their chemical composition. The physiology of bacteria, the manner in which they influence and are influenced by their environment close what might be termed the introductory portion of the book. The remainder, about two thirds of the volume, is devoted to the study of pathogenic microbes, infection, inflammation, and phagocytosis, the pathogenic protozoa, microbial and vegetable toxins and endotoxins, tuberculin, venoms, immunity, and anaphylaxis. The applications of bacteriology, vaccines, sera, and chemotherapy close the volume. Notwithstanding its small size, this book contains an aggregate of knowledge seldom equalled by more pretentious works, while the manner in which it is written renders its perusal as agreeable as it is instructive.

Symptoms and Their Interpretation. By JAMES MACKENZIE, M. D., LL. D. Second Edition. London: Shaw & Sons, 1912. Pp. xx-304. (Price, 7s. 10d.)

In the first edition of this excellent little work the author drew attention to the valuable aid afforded by pain and the nervous phenomena accompanying it in diagnosis. Without decrying laboratory methods, he held that their practical value to the general practitioner was relatively slight compared to the information available through recognition of the symptoms arising from reflex stimulation of the nervous system and many of the simpler diagnostic resources. The more recondite methods used in well equipped hospitals and laboratories serve their purpose and can be carried on efficiently, but when such facilities are not available, the physician must use all the resources afforded by the older and simpler methods. Such views have seemed too unorthodox for some, but these, fortunately, proved relatively few, and the bulk of the profession has obtained considerable aid from the lines the author lays down. The second edition brings the whole subject up to date and constitutes a very valuable contribution to our knowledge of diagnosis.

Stuttering and Lisp. By E. W. SCRIPTURE, Ph. D., M. D. New York: The Macmillan Company, 1912. Pp. xiv-251. (Price, \$1.50.)

It is a well known fact that sufferers from stuttering and lisp receive scant encouragement from the average physician as regards relief from these conditions, also that the usual methods of treatment are mostly ineffectual. It is largely within the last decade that systematic investigations have been made, classifying the different forms of speech defects and analyzing the various underlying causative factors. These are the methods considered in the present work, which is a comprehensive presentation of laboratory, clinical, and psychological studies, and the methods of treatment applicable to the different types of cases with the idea of attacking the fundamental causes of the disturbance in each individual case.

La virulence des pneumocoques. Par L. COTONI. Paris: G. Steinheil, 1912. Pp. 96.

In this monograph of ninety-six pages the author presents many interesting points relating to the pneumococcus. He starts with a general discussion of the organism and gives a description of the medium used by him in his work. The cultural characteristics as well as the pathogenic qualities are related. The modifications of virulence according to whether it has or has not been passed through lower animals are reviewed. The manifestations of infection of various animals by this organism are given, and the article closes with a presentation of the author's conclusion. To one particularly interested in bacteriology in general or in pneumonia this contribution would be distinctly valuable.

Lead Poisoning and Lead Absorption. By THOMAS M. LEGGE, M. D., D. P. H., H. M., and KENNETH W. GOADBY, M. R. C. S., D. P. H. London: Edward Arnold; New York: Longmans, Green, & Co., 1912. Pp. xi-308. (Price, \$3.50.)

This volume is one of the series of the international medical monographs and is a comprehensive presentation of the symptoms, pathology, and prevention of lead poisoning with special reference to its industrial origin and on account of the principal processes involving risks. The treatise deals to a large extent with the observations and experiments of the authors, both of whom have had excellent opportunities for experience. Of particular interest and importance are the facts presented concerning the etiology and pathology of plumbism. The industries in which lead is used are numerous, and each has been studied with regard to the avenues of intoxication and the prevalence and seriousness of the symptoms. The conclusion is reached that the main source of absorption is inhaled dust containing lead particles. Cutaneous absorption, even in painters, is of comparatively slight importance. From this evidence prophylaxis becomes a comparatively simple matter, as it depends largely upon ventilation and exhaust fans to remove dust containing lead from the respired atmosphere where it is formed by the various industrial processes. Of equal interest is the evidence supporting the view that the primary and fundamental pathological changes produced by plumbism are in

the blood and bloodvessels. Anemia, increased viscosity, and clotting time of the blood are followed by vascular degeneration and microscopical hemorrhages and occlusions, affecting almost all of the tissues of the body. These processes are correlated with the various symptoms of the disease: Neuritis thus results from minute extravasations into the nerve sheaths causing degeneration; encephalopathy from microscopical hemorrhages in the cerebral cortex; colic from the involvement of the mesenteric and intestinal vessels and those of the sympathetic plexuses of the abdomen. The chapters devoted to preventive measures and treatment are of much practical value.

BOOK AND MAGAZINE NOTES.

The latest book of Dr. James J. Walsh, *Modern Progress and History*, contains addresses made on various academic occasions, a few of which have appeared previously in print. Among the eleven essays there are a few which will appeal to our profession, among them a paper on Prescriptions Old and New, which appeared in this JOURNAL for June 17, 1911. This article makes very interesting reading. The others are Dentistry, How Old the New, Professional Life and Community Interests, and The Story of Postgraduate Work. But the essay which interested us most is Pronunciation Old and New, in which the author takes up the study of what is called the Irish brogue; it is shown that the Irish were taught English in Queen Elizabeth's time, and that they have preserved almost intact the speech of that period. Irish English, therefore, instead of being a degenerate form of English, used by the uneducated masses, is really English as it was spoken during the golden age of English literature.

What Mr. Hillquist calls the "gospel" of socialism is now preached in thirty languages and counts some thirty million adherents in different parts of the world. What socialists hope to accomplish, their programme of reforms wanted in the United States, their tenets in general and the principles upon which these are based, together with an explicit statement of what socialists do not believe, are set forth in *Socialism Summed Up* (Morris Hillquist. New York: H. K. Fly Company, 1913. Pp. 110. Price, \$1) in plain yet eloquent language. It is worth reading by the doctor of any political creed, for planks from the socialistic platform have now entered into every party edifice, yet socialism as a whole is little understood. Socialism is a singularly attractive doctrine to those of the temperament to which the average physician belongs; the firm believer in individualism, moreover, will find here precisely what he will have to fight in the early future. Recent developments in Great Britain show what impends among us, for the profession lends itself readily to socialism from its altruistic and liberal nature

Meetings of Local Medical Societies.

MONDAY, March 10th.—Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Williamsburg Medical Society, Brooklyn; New Rochelle, N. Y., Medical Society; Corning, N. Y., Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, March 11th.—New York Academy of Medicine (Section in Neurology and Psychiatry); New York Obstetrical Society; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine; Newburgh Bay Medical Society; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.

WEDNESDAY, March 12th.—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City Hospital; Brooklyn Medical and Pharmaceutical Association; Dunkirk and Fredonia Medical Society; Alumni Association of the Norwegian Hospital, Brooklyn; Richmond County, N. Y., Medical Society.

THURSDAY, March 13th.—New York Academy of Medicine (Section in Pediatrics); Brooklyn Pathological Society; West Side Clinical Society, New York; Blackwell Medical Society of Rochester, N. Y.; Jenkins

Medical Association, Yonkers; Auburn City Medical Society; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua; Gloversville and Johnstown Medical and Surgical Association; Physicians' Club of Middletown.

FRIDAY, March 14th.—New York Academy of Medicine (Section in Otology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Society of Ex-Internes of the German Hospital in Brooklyn; Saratoga Springs Medical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending February 26 1913:

Bahrenburg, L. P. H., Passed Assistant Surgeon. Directed to delay his return to Galveston, Tex., for conference with bureau relative to medical inspection of arriving aliens and the habilitation of the new quarantine station at the port; also to report to director of the Hygienic Laboratory for special instruction in the method of microscopical examination for the detection of hookworm disease. **Carmichael, D. A.**, Senior Surgeon. Relieved from duty in command of the service at Buffalo, N. Y., and directed to proceed to Vineyard Haven, Mass., and assume command of the Marine Hospital at that port. **Clark, T.**, Surgeon. Directed to proceed to St. Paul and other places in Minnesota to investigate the prevalence of trachoma. **Irwin, Fairfax**, Senior Surgeon. Granted one month's leave of absence, to take effect upon his arrival in the United States. **King, W. W.**, Passed Assistant Surgeon. Detailed to proceed to Gibraltar, Spain, for the medical examination of emigrants departing for the Hawaiian Islands. **Kolb, L.**, Assistant Surgeon. Directed to relieve Passed Assistant Surgeon C. W. Vogel and assume command of the Reedy Island Quarantine Station. **Loughran, J. J.**, Acting Assistant Surgeon. Granted six months' leave of absence, without pay, from March 1, 1913. **Lumsden, L. L.**, Surgeon. Detailed to attend the Interstate Agricultural and Industrial Congress to be held at St. Joseph, Mo., March 6 to 8, 1913. **Olesen, Robert**, Passed Assistant Surgeon. Relieved from duty in the Philippine Islands and directed to proceed to San Francisco, Cal., and await further orders. **Reed, A. C.**, Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Reedy Island Quarantine station and report to the medical officer in command for duty and assignment to quarters. **Tuttle, Jay**, Acting Assistant Surgeon. Granted thirty days' leave of absence from February 20, 1913. **Vogel, C. W.**, Passed Assistant Surgeon. Relieved from duty at Reedy Island Quarantine and directed to proceed to Ellis Island, N. Y., and report to Chief Medical Officer for duty.

Board Convened.

Board of medical officers convened to meet at Galveston, Texas, for the reexamination of a detained alien. Detail for the board: Surgeon G. M. Guiteras, chairman; Acting Assistant Surgeon W. H. Gammon, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 1, 1913:

Baker, C. R., Lieutenant, Medical Reserve Corps. Left Fort Constitution, N. H., on February 27th for Fort Ethan Allen, Vt. **Duncan, W. A.**, Captain, Medical Corps. Arrived at Fort McPherson, Ga., on February 21st, and at Fort Oglethorpe, Ga., on February 26th, to instal x ray machine. **Hanson, L. H.**, Captain, Medical Corps. Granted leave of absence for sixteen days, about March 12th. **Keene, T. B. V.**, Lieutenant,

Medical Reserve Corps. Ordered to active duty at Fort Benjamin Harrison. **Meister**, W. B., Lieutenant, Medical Corps. Assigned to duty with the 22d Infantry at Camp Fort Bliss. **Miller**, R. B., Major, Medical Corps. Left Fort Wayne, Mich., on February 26th, for Texas City, Texas. **Myers**, W. H., Lieutenant, Medical Reserve Corps. Left Fort Screven, Ga., on February 10th, for his home on leave of absence until May 7th, when his resignation will take effect. **Robinson**, J. L., Lieutenant, Medical Corps. Left Fort Wayne, Mich., February 25th, for Texas City, Texas. **Smith**, A. M., Lieutenant Colonel, Medical Corps. Returned to Fort Snelling, Minn., from duty with Fourth Infantry en route to Galveston, Texas, on account of infection in his right hand. **Snyder**, H. McC., Captain, Medical Corps. Sick in quarters on February 17th. **Usher**, F. M. C., Major, Medical Corps. Arrived at San Antonio, Texas, on February 23d, and assumed the duties of chief surgeon of the Cavalry Division.

The following named lieutenants have been ordered to active duty in the Medical Reserve Corps at the posts following their names: T. A. Burcham, Fort Des Moines; E. H. Webster, Fort Brady; G. M. Solby, Fort Mackenzie; F. H. Newberry, Fort Wayne; T. S. Proxmire, Fort Sheridan.

The following named officers of the Medical Corps have left their stations and have gone with troops to Galveston, Texas: Major F. M. Hartsock, Captain A. W. Williams, Captain C. L. Cole, Lieutenant S. S. Creighton, Major C. E. Koerper, Major E. F. Geddings, First Lieutenant Omar H. Quade, First Lieutenant J. M. Willis, Major F. A. Dale, First Lieutenant H. J. Hallett, and First Lieutenant H. H. Blodgett.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the two weeks ending March 1, 1913:

Benton, F. L., Surgeon. Detached from the *Delaware* and ordered to duty with marines on the army transport *Meade*. **Charlton**, C. F., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the navy recruiting station, Hartford, Conn.; detached from this station and ordered to the Naval Hospital, New York, N. Y. **Dragoo**, C. H., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Meade*. **Findeisen**, W. E., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Prairie*. **Hale**, G. D., Passed Assistant Surgeon. Will proceed from the Receiving Ship at Puget Sound, Wash., to the U. S. S. *Yorktown*. **Huff**, E. P., Passed Assistant Surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to duty with marines on the *Prairie*. **Johnson**, L. W., Passed Assistant Surgeon. Will proceed from the Naval Recruiting Station, Baltimore, Md., to the Naval Hospital, Washington, D. C. **Littell**, J. C., Acting Assistant Surgeon. Will proceed from the Marine Recruiting Station, Cleveland, Ohio, to the Navy Recruiting Station, Salt Lake City, Utah. **Munson**, F. M., Passed Assistant Surgeon. Detached from the Navy Recruiting Station, Hartford, Conn., and ordered to duty with marines on the army transport *Meade*. **Payne**, J. H., Acting Assistant Surgeon. Detached from the Navy Recruiting Station, Atlanta, Ga., and ordered to the Navy Recruiting Station at Hartford, Conn. **Pollard**, J. B., Passed Assistant Surgeon. Detached from the Navy Recruiting Station, Dallas, Texas, and ordered to the Naval Recruiting Station, Atlanta, Ga. **Post**, D. C., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Navy Yard, New York, N. Y. **Straeten**, R. J., Passed Assistant Surgeon. Detached from the *Florida* and ordered to the *Tonopah*. **Townsend**, W. G., Acting Assistant Surgeon. Detached from the Marine Recruiting Station, Baltimore, Md., and ordered to the Navy Recruiting Station, Baltimore, Md. **Whitmore**, G. B., Passed Assistant Surgeon. Detached from the Navy Recruiting Station, Salt Lake City, Utah, and ordered to the Receiving Ship at Puget Sound, Wash. **Wood**, C. O., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to duty with marines on the *Prairie*.

Births, Marriages, and Deaths.

Married.

Dow—Smylie.—In New York, on Thursday, February 20th, Dr. Edmund LeRoy Dow and Mrs. Julia Ely Smylie. **Hibshman—Mathews**.—In Philadelphia, on Wednesday, February 19th, Dr. Harry Z. Hibshman and Miss Charlotte Elizabeth Mathews. **Kemp—West**.—In Baltimore, Md., on Tuesday, February 18th, Dr. Howard Martin Kemp, of Turner Falls, Mass., and Miss Mary Louise West. **Klein—Brower**.—In Williamsport, Pa., on Wednesday, February 26th, Dr. Arno Klein, of Mount Vernon, Ind., and Miss Emily Virginia Brower. **Peake—Gregory**.—In Delhi, N. Y., on Tuesday, February 11th, Dr. Chester A. Peake, of Brooklyn, and Miss Susanna L. Gregory.

Died.

Allen.—In Cambridge, Mass., On Saturday, February 22d, Dr. Nathan L. Allen, aged fifty-nine years. **Ambler**.—In New York, on Monday, February 24th, Dr. J. Edgar Ambler, aged forty-one years. **Barton**.—In Scranton, Pa., on Thursday, February 20th, Dr. Edith Barton. **Bayley**.—In Haverstraw, N. Y., on Thursday, February 27th, Dr. Norman B. Bayley, aged sixty-six years. **Bell**.—In Baltimore, Md., on Monday, February 24th, Dr. Alexander T. Bell, aged seventy-seven years. **Bowdish**.—In Marion, Ohio, on Thursday, February 20th, Dr. Russell Clark Bowdish, aged ninety years. **Brown**.—In Higbee, Mo., on Monday, February 17th, Dr. Alfred James Brown. **Clark**.—In Portland, Me., on Tuesday, February 18th, Dr. George Albert Clark, aged sixty-six years. **Dal**.—In West Olive, Mich., on Thursday, February 13th, Dr. John W. Dal, of Chicago. **Duvall**.—In Kansas City, Mo., on Saturday, February 15th, Dr. John F. Duvall, aged sixty-five years. **Eichelberger**.—In Frederick, Md., on Sunday, February 23d, Dr. James W. Eichelberger, of Emmitsburg, aged seventy-one years. **Fetherolf**.—In West Milton, Pa., on Sunday, February 16th, Dr. James Allen Fetherolf, aged sixty-three years. **Fischer**.—In Paterson, N. J., on Saturday, February 22d, Dr. George Fischer, aged forty-eight years. **Goodman**.—In Brooklyn, N. Y., on Wednesday, February 19th, Dr. Alexander Mansfield Goodman, aged fifty-nine years. **Gosweiler**.—In New York, on Saturday, February 22d, Dr. Augustus VanHoff Gosweiler, aged sixty-three years. **Hiss**.—In New York, on Thursday, February 27th, Dr. Philip Hanson Hiss, Jr., aged forty-one years. **Kinne**.—In Excelsior Springs, Mo., on Thursday, February 20th, Dr. Elizabeth Kinne, aged eighty-six years. **Leonard**.—In St. Joseph, Mo., on Monday, February 24th, Dr. John W. Leonard, aged fifty years. **L'Hommedieu**.—In Brooklyn, N. Y., on Friday, February 21st, Dr. John B. L'Hommedieu, aged forty-six years. **Little**.—In Brooklyn, N. Y., on Monday, February 24th, Dr. William A. Little, aged sixty-three years. **Miller**.—In Santa Fe, N. M., on Tuesday, February 18th, Dr. Robert Hamilton Miller, aged thirty-eight years. **Miller**.—In Castile, N. Y., on Saturday, February 22d, Dr. Roger Wright Miller, aged sixty-eight years. **Montgomery**.—In Owensville, Ind., on Thursday, February 20th, Dr. Thomas J. Montgomery, aged seventy-four years. **Neville**.—In Chicago, on Thursday, February 20th, Dr. James A. Neville. **Ramsey**.—In Memphis, Tenn., on Saturday, February 22d, Dr. Walter Hardy Ramsey, aged sixty years. **Shawgo**.—In Jacksonville, Ill., on Wednesday, February 19th, Dr. J. B. Shawgo, of Quincy, aged sixty-nine years. **Shortlidge**.—In Wilmington, Del., on Monday, February 24th, Dr. Evan G. Shortlidge, aged sixty-nine years. **Staley**.—In Chicago, on Thursday, February 20th, Dr. Amos C. Staley. **Sturgeon**.—In Akron, Ohio, on Tuesday, February 11th, Dr. Samuel H. Sturgeon, aged sixty-four years. **Wagner**.—In Fort Wayne, Ind., on Sunday, February 23d, Dr. Edward F. Wagner, aged fifty-two years. **Walker**.—In Buffalo, N. Y., on Friday, February 21st, Dr. Hiram Dana Walker, aged seventy-three years. **Ward**.—In St. Louis, Mo., on Saturday, February 22d, Dr. Edgar Pearl Ward, aged forty-six years. **Welty**.—In Norwalk, Ia., on Friday, February 21st, Dr. Ephraim Welty, aged seventy-three years. **Winnie**.—In Hornell, N. Y., on Wednesday, February 19th, Dr. Ephraim Winnie, aged seventy-seven years.

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Original Communications.

ACIDOSIS.*

BY WILLIAM S. GORDON, M. D.,
Richmond, Va.,

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The baneful effects of acetone bodies found in diabetes mellitus have been long known. It is only within the past few years, however, that acidosis occurring in other diseases or as a primary disorder has been recognized as a serious and not infrequent condition. Various theories have been advanced as to the underlying disturbances of metabolism which cause the appearance of betaoxybutyric acid, diacetic acid, and acetone in the urine; but we must remain in ignorance of the real source of acidosis until a better knowledge of physiological chemistry is obtained. I do not pretend to offer anything in the way of original investigation; nor is it my purpose to treat at length the theoretical part of the subject, but rather to call attention to a few of the views recently expressed and to emphasize certain practical points suggested by a study of illustrative cases. We may thus approach nearer to the whole truth by viewing the standpoints of different observers.

Labbé (*Presse médicale*, April 3, 1912), attributing diabetic coma to the toxemia of betaoxybutyric and diacetic acids, believes in a preliminary stage of acidosis, inasmuch as some apparent cases are relieved by alkalis. He supposes the true coma to be due to a progressive destruction of nitrogenous substances in the body—a polypeptic intoxication—with elimination of ammonia and aminoacids, which is rapidly fatal and defies treatment. One of the writer's worst cases of diabetes, produced by a severe mental shock, had an enormous excretion of urea prior to the appearance of sugar.

In an editorial article (*Medical Record*, September 14, 1912) on the biological significance of the thymus, this statement is made: "Klose believes that thymus extirpation causes acidosis, and that the excess of acid in the economy prevents the deposition of the lime salts. The inference is that a natural function of the thymus is the prevention of acidosis. Thus free phosphoric acid is rendered harmless by the nuclein synthesis. The changes in the nervous system are parallel with those of the bones. There is a peculiar swelling and liquefaction of nervous substance presumably due to the

acidosis. This is expressed clinically in many ways. The coma which results in time from this mechanism is readily intelligible."

In the same journal (March 16, 1912) occurs the following abstract of a very interesting article by Dr. B. W. Rhamy (*Journal of the American Medical Association*, March 2, 1912):

Subcutaneously injected, acetone has a slow cumulative toxic power which may, during periods of individual susceptibility, effect serious or even fatal damage. Subcutaneously injected, the toxic power of acetone is much greater than that of methyl alcohol. Guinea pigs not only have an individual susceptibility, but have daily variations in their individual susceptibility. Acetone dehydrates and hardens tissues, is a local irritant, and causes hemorrhagic extravasations. If acetone is formed in the intestines or liver, it must be in a pure, strong state at the site of formation, and would there exert its destructive action on the neighboring cells. Following a toxic dose of pure acetone, guinea pigs develop coma, rapid respiration, and nervous phenomena, including itching, dizziness, muscular twitching, and temporary mental disturbance; and may develop convulsions in the form of rapid clonic spasms. The acetone is excreted almost entirely by the lungs. Post mortem examinations of guinea pigs killed by acetone poisoning show fatty degeneration of the liver and kidneys, with hardened and ruptured bloodvessels and hemorrhagic extravasation. Acetone is to be considered a far more important sign of toxemia in pregnancy than urea or albumin, and should always be looked for as a premonitory danger signal of toxemia.

The author proceeds to state that indol, urea, and other substances can be injected in large amounts without injury provided the body is healthy. The same truth doubtless holds, in a measure, with regard to acetone. The inference is that in the case of human beings, acetone toxemia occurs when even small quantities cannot be eliminated. In some of the eight cases of acetone poisoning reported by Doctor Rhamy the condition seemed to be primary, while several were fatal.

Reference is made (*Journal of the American Medical Association*, lviii, p. 2040) to two cases of liver disease, reported by Marcel Labbé and H. Bith, in which acidosis appeared. In the first case, proving fatal, the liver was fatty; in the second, recovering, there was transient disturbance of sugar metabolism, with urobilin and aminoacid in the urine. In the light of previous statements the question may be asked whether these were cases of primary disease of the liver.

Frew (*Proceedings of the Royal Society of Medicine*, March, 1912), after a study of the urine in 662 children, believes that:

In the large majority of cases of acetonuria following anesthesia, the acidosis is an independent condition caused by temporary inability of the digestive organs to handle carbohydrates. This is due to the withdrawal of food as a preparation for the anesthetic, and to carbohydrate

*Read before the fifteenth annual meeting of the Tri-State Medical Association of the Carolinas and Virginia, Norfolk, Va., February 19 and 20, 1913.

starvation. The acetonuria usually appeared in twelve hours after admission, reached its maximum in thirty-six hours, and gradually lessened, disappearing by the fourth day. The younger the child, the greater the incidence. The administration of dextrose caused a disappearance of symptoms in twelve hours.

With the opinions expressed above may be compared the report by J. Bentley Squier (*Medical Record*, January 6, 1912) of a fatal case of acidosis occurring after nephrectomy. The author quotes Brackett, Stone, and Low, of Boston, as follows: "One of the conditions under which an increase in acetone excretion occurs is phosphorus poisoning, the acetone excretion taking place as the result of the destruction of fat tissue." He further states: "They believe the toxic symptoms are due to the fatty antecedents of acetone rather than to acetone itself"; and quotes Waldvogel, who concluded that a direct toxic action of the anesthetic was an important factor in producing the acidosis of certain children upon whom his observations were made. Again, the author refers to the views of Cragin and Hull to show that relatively short anesthesia with chloroform might produce serious, extensive, and fatal lesions of the liver. He states that it is uncertain whether the acidosis is the cause or the result of the liver changes, and that the amount of acetone in the urine is not always proportionate to the symptoms. In this connection it is well to bear in mind the observations of Straub and Schlayer (*Münchener medizinische Wochenschrift*, March 12, 1912), who state that the repeated application in eight cases of uremia, of Haldane's test for carbon dioxide tension in the alveoles, has confirmed the belief that uremia and acidosis are closely related. When carbon dioxide tension falls below normal, acidosis exists.

With regard to carbohydrate starvation we find the following statement in Webster's *Diagnostic Methods*:

The omission of sugars from the diet forces the organism to utilize its protein and fat, and thus gives rise to an accumulation of nitrogenous and fatty metabolic products as well as to an increase in the acids of the body fluids. In this way an acidosis already present would be increased in intensity. If the carbohydrate free diet is continued for some time, a readjustment takes place, and the acetonuria may gradually diminish, as is instanced by the fact that certain races show no acetonuria even though on an absolutely carbohydrate free diet.

O. Berghausen (*Archives of Internal Medicine*, February, 1912), in speaking of the rôle of acidosis in the production of hemoglobinuria, believes that local tissue changes must occur before the appearance of hemoglobinemia or hemoglobinuria; and that, since cold, trauma, and passive congestion may produce an attack, and since these three conditions are associated with the production of excessive acidity in the tissues, it is reasonable to infer that the organic acids thus formed may have some direct influence in producing the attacks. These conclusions are based upon the power of a 1.5 per cent. solution of sodium citrate to prevent hemolysis of both the patient's and normal human corpuscles in an atmosphere of carbon dioxide at room temperature.

E. O. Houda (*Journal of the American Medical Association*, April 20, 1912) reports the case of a boy of fifteen years from whom a gangrenous appendix was removed under chloroform. There was

no pus nor evidence of peritonitis. For twenty-four hours the pulse and temperature were normal, after which periodical restlessness, jaundice, ethereal odor of the breath, mental confusion, and stupor appeared. The kidney function was normal, but acetone was found in the urine. The patient died in coma. The autopsy showed a normal peritoneum and no sign of infection about the wound. The liver was quite large and of a pale color. I recall a similar case, which occurred some years ago in the country. The surgeon whom I summoned and who operated promptly, removed a partly gangrenous but unruptured appendix, and closed the wound without drainage. For twenty-four hours all went well, but a rapidly deepening jaundice developed, and the young man died in coma. Facilities for urinary analysis were not at hand. Death was attributed to sepsis; but, from the viewpoint of the case reported above, it may be questioned whether this opinion was correct.

L. M. Routh (*British Medical Journal*, July 13, 1912), citing a case of unilateral parotiditis associated with glycosuria and acidosis, thinks that the complication was due to autointoxication, with secondary effects upon the pancreas.

F. Reiche (*Münchener medizinische Wochenschrift*, 58, 2153, 1911) states that in 3,826 cases of diphtheria and acute anginas, of which 3,200 were acute diphtheria, acetonuria was present in sixty per cent. of the cases. The important observation was made that diet seemed to play a small part in producing acetonuria, since many of the patients were receiving carbohydrates.

Silberstein (*ibidem*, July 23, 1912) states that children with acetonemia have a markedly coated tongue, vomiting, pallor, and fever; and that cod-liver oil may produce this condition. Repeated attacks in the same child have been traced to whipped cream, milk, cheese, and other articles. Fruity odor of the breath and acetonuria are usual accompaniments. Idiosyncrasy, with intolerance, must be present. The kind of fat probably has no influence, while direct ingestion of fatty acids might cause the condition. The treatment recommended consists of alkalies (soda preferably), followed by hydrochloric acid and pepsin.

Walter C. Swayne (*Proceedings of Royal Society of Medicine*, June, 1912), after an analysis of four cases of vomiting, six of albuminuria, and five of eclampsia, occurring in pregnancy, concludes that chloroform should not be given to patients with acidosis or eclampsia, and that increasing acidosis in cases either of albuminuria or severe vomiting indicates the termination of pregnancy, with the usual measures for acidosis.

In connection with anesthesia, Dr. Sidney A. Chalfant (*Journal of the American Medical Association*, lix, 11) has a valuable paper on the relation of postoperative vomiting to acetonuria, as determined from a study of 700 cases of ether anesthesia. His tables are very interesting, and the conclusions were as follows:

1. Vomiting occurs in a large percentage of cases after anesthesia.
2. The liability to vomiting is increased when acetone is found in the urine.
3. Protracted vomiting is best treated with sodium bicarbonate by bowel and lavage. These patients need careful watching on account of the liability to acid intoxication.

4. Acetonuria is due to faulty metabolism, and is increased by carbohydrate starvation.

5. Acetonuria has no relation to the length of anesthesia.

6. The duration of anesthesia has only a slight influence upon vomiting.

The author refers to Waugh, who, in the discussion of Frew's paper, states that in 2,000 cases of chloroform anesthesia in which the preanesthetic purge and diet restriction were omitted there was not a single case of acid intoxication.

In the following cases, occurring in the writer's practice, acidosis was present in a greater or less degree:

CASE I. Female. General sepsis, presumably starting from an abrasion on the leg. Mild jaundice. Uncontrollable vomiting. Cerebral involvement and death in coma.

CASE II. Female. Exophthalmic goitre. Operation impossible on account of the patient's condition, although there was practically no enlargement of the thyroid. Cerebral involvement and death in coma.

CASE III. A young boy. Cyclic vomiting. No apparent cause. Recovery.

CASE IV. Male. Trichiniasis. No marked symptoms apart from the usual ones except a noticeable rapidity of the pulse rate. Recovery.

CASE V. Female. Insanity. Outcome unknown.

CASE VI. Pregnancy. Mitral regurgitation. In this case the acidosis was marked, with albumin, lactose, and casts in the urine. The urine became normal under dietetic and eliminative treatment.

CASE VII. Pregnancy. Mild acidosis; concentrated alkaline urine, with heavy precipitate of phosphates. Patient complained of hemorrhoids, constipation, and headache. No renal involvement. The acetone disappeared after the patient had dieted and taken nitrohydrochloric acid with bitter tonics.

CASE VIII. Pregnancy of three or four months' duration. Mitral regurgitation of long standing. Intense acidosis and almost uncontrollable vomiting. Severe hematuria, with albumin and casts. Labor induced by an obstetrician. The life of this patient hung in the balance for some days, but recovery ensued. She has had several attacks of acidosis when not pregnant. In the last attack there was marked hematuria.

The symptoms of acetone poisoning, in the main, are nausea, vomiting, diarrhea, tachycardia, and other circulatory disturbances, pruritus, dyspnea, vertigo, somnolence, convulsions, and coma. The peculiar odor of the breath is often present. D. G. Hall (*Boston Medical and Surgical Journal*, clxvi, 18) states that in seven out of nine cases of cerebrospinal meningitis the saliva was acid, and thinks that acidity predisposes to the disease. In fact, attention has been called by other observers to the close resemblance at times between the symptoms of acidosis and those of cerebrospinal meningitis. The diagnosis is not difficult, as the presence of acetone in the urine, and the odor of the breath, with the symptoms stated, establish the condition.

The prognosis depends upon the severity of the toxemia, the resistance of the patient, the complicating conditions, the early recognition of the disorder, and the promptness of treatment. Fatal cases are more common than one would suppose.

The treatment resolves itself into the removal of the cause; active elimination; the use of carbohydrates by the mouth, rectum, or veins; and the administration of alkalis—sodium salts preferably—through the same channels. Marchand speaks of the efficacy, in diabetic coma, of the intravenous injection of 300 c. c. of a five per cent. solution of sodium bicarbonate. Chalfant states that the administration of glucose before operation made no

decided difference in the postoperative vomiting, while the patients strongly objected to the taste of the glucose. It was not given by rectum on account of the purge. On the other hand, E. Chauvin and N. Aeconomos (*Presse médicale*) aver that post-anesthetic vomiting is prevented by the administration of glucose, 150 grammes; tincture of nuxvomica, 0.50 c. c.; tincture of canella, three c. c.; water, sufficient to make 300 c. c. In patients with alkaline urine and excess of phosphates, I have had good results from the mineral acids, bitter stomach tonics, and regulation of the diet.

A few comments based upon a review of foregoing statements may be admissible. It is clear that the processes concerned in producing acidosis are not thoroughly understood, and that they result from disturbed metabolism due to various pathological conditions. While acetonemia may appear under carbohydrate starvation and disappear under a corresponding regulation of the diet, it does occur on a full carbohydrate diet. Even in the former case other preexisting factors may be operative. Excessive urea formation may precede the appearance of acetone. The gravity of the condition may be out of proportion to the amount of acetone in the urine; and while a large number of cases of acetonemia are relieved, even when unrecognized and untreated, the toxemia is frequently of serious import. Its occurrence with alkaline and phosphatic urine should not be overlooked.

It is evident, also, that the nausea, vomiting, and consequent abstinence from food which are often correctly supposed to cause acidosis may frequently be results instead of causes, and that, so far as symptoms and treatment are concerned, the toxemia should in such cases be regarded as a primary and not as a secondary or incidental disorder. Furthermore, it should not be forgotten that the symptoms of acidosis may be erroneously attributed to other morbid states. Especially in pregnancy should one be on the watch for a toxemia due directly to acetone and not accounted for by kidney involvement or the retention of urea. The importance of routine examinations of the urine is apparent, lest we be caught napping and find ourselves confronted by a grave and unsuspected complication.

The relation which acidosis bears to the hepatic and renal disturbances following anesthesia is a matter of serious concern to the surgeon as well as physician. We have seen the rapidity with which fatty changes may set up in the liver, and we are not unfamiliar with the suppression of urine which sometimes occurs and which may prove quickly fatal. It is a point to be determined whether the acidosis is secondary to the effects of the anesthetic upon the liver and kidney, or whether it is a direct result of some disturbance of metabolism due to the anesthetic, thus becoming the immediate cause of the liver and kidney involvement. The majority of patients who take anesthetics are the subjects of disease and consequent metabolic derangement. In these subjects acidosis may previously exist and be made worse by chloroform or ether; but in many instances the organs, previous to anesthesia, are not manifestly diseased. Does acetone poisoning occur under these conditions, and, if so, is not either the

acute suppression of urine or the fatty liver primarily attributable to the acidosis? This is a vital question, which has an important bearing upon prevention and treatment.

I have had it in mind to begin a series of experiments in order to gain a partial idea, at least, of the disorders of metabolism associated with anesthesia. The tables published by Doctor Chalfant are quite conclusive as regards the specific points which he intended to cover. There is more work to be done, however; and it might be profitable for others interested in the subject to take up the investigation along the lines suggested in this paper. The study of the toxemia of pregnancy is of great importance. With regard to anesthesia, the particular agent used and the condition for which it is given should be recorded. In cases of death from anesthesia, autopsies should be made if possible, and the changes in the liver and kidney be accurately noted. Great truths are sometimes discovered by individuals, but, as a rule, they are born out of the experience and experiments of a number of observers.

5 EAST FRANKLIN STREET.

BLOOD AND SPUTUM IN CROUPOUS PNEUMONIA.*

Bacteriological Studies.

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The almost daily request when sputum is submitted for examination, to demonstrate the pneumococcus, led us to study the general bacteriological flora in cases diagnosticated as croupous pneumonia.

Every bacteriologist knows that the pneumococcus can be demonstrated in normal saliva, in the majority of cases both by spreads and by inoculation into animals. Some sputa contain only a few of these organisms, while others show great numbers; yet no symptoms of pneumonia are present in either case. No one can say that the mere presence of the pneumococcus in the sputum means pneumonia; nor, simply by the inoculation into an animal of this sputum if the animal dies and the pneumococcus is isolated from the blood, is it any criterion to say that it came from a patient with pneumonia.

The sputum in croupous pneumonia is bacteriologically very rich in many types of organisms, and very rarely by simply making one or two spreads from any one specimen, do we find a predominance, so to speak, of any so called specific organism of this disease.

There is nothing extremely characteristic of the morphology of the sputum after the rusty or prune juice character disappears. Very little if any dif-

ference in the bacterial flora took place in the sputum before or after the crisis.

Our technic was to take at least six spreads from each sample submitted. The first spread was made in the ordinary way, the bottle was shaken thoroughly, and the second spread was made, the sample again shaken, and spreads made until six were obtained. Sometimes the sputum was poured out into Petri dishes and spreads were made from different portions. Spreads were stained with Loeffler's methylene blue and some in each series stained by Gram's technic. So in every case of clinically diagnosticated pneumonia, at least six and as many as thirty-six slides were examined.

Sputum was collected in sterile receptacles every third day, and an effort was made to have it collected as early in the course of the illness as was possible. The physical characteristics were noted, and then from each specimen smears were made.

In summing up our results, a fact which was very evident was the difficulty of obtaining sputum early in the disease. Of the total number of cases, in only seven was it possible to obtain sputum before crisis, lysis, or a complication set in. Whether this was due to the fact that there really was no expectoration, or the patient having swallowed it; or whether there was actually less secreted, is difficult to state. As the course of the disease progressed and the crisis or lysis passed, the expectoration increased. There was no attempt made actually to measure the amount of sputum secreted in the course of the disease. Of the total number of cases from which sputum was obtained early, only three cases exhibited a tenacious rusty sputum. Two of these patients ran a typical course of croupous pneumonia. In one, the pneumococcus was recovered from a blood culture, and in but one of these did the pneumococcus predominate in the sputum before crisis.

The rusty sputum in these cases was not maintained for any length of time, and only one case showed this color on the second examination. Of the other cases in which sputum was obtained early, it was always tenacious and a grayish color usually predominated. After the crisis or lysis began, the sputum was thick and tenacious, and later, during convalescence, became of a serous character. The majority of the samples were blood stained shortly after crisis and later became uniformly gray, though some showed a yellow mucopurulent sputum after crisis.

In the bacteriological studies of sputa before crisis we found there was no predominance of one organism over another. There were four bacteria which were seen most frequently, the pneumococcus, streptococcus, micrococci of suppuration, and *Micrococcus catarrhalis*.

Other organisms found were *Bacillus pseudodiphtheriticus*, *Bacillus Friedlander*, *Bacillus septus*, and various other unidentified bacilli, some being Gram positive and others Gram negative.

SUMMARY.

It was possible to obtain sputum in some cases as early as two days after the illness began. It was examined on an average until sixteen days after the onset of the disease. In one case in which tubercu-

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losis later developed as a complication, twenty-one examinations of sputum were made over a period of eighty-three days, the final one showing the presence of tubercle bacilli.

In some cases it was possible to obtain sputum for only one examination, while in other cases six or seven examinations were made. Sputum was examined from seventeen cases, making the total number of spreads studied 296.

1. The amount of sputum obtained in our cases of croupous pneumonia before the crisis was usually very small.

2. The characteristic rusty sputum is not obtained in all cases of croupous pneumonia, and was found in forty-two per cent. of our cases.

3. There was no predominance of the pneumococcus over streptococci, micrococci of suppuration or micrococcus catarrhalis in croupous pneumonia before the crisis.

Isolation of bacteria from the blood in different stages of cases of croupous pneumonia, has been attempted by many men. The results as a whole have varied. Prochaska in two series of thirty and ten cases respectively, found the pneumococcus in all of the cases. Several other investigators, including Silverstrini, Sertoli, and Rosenow, have been successful in finding the organism in a large percentage of cases. That a bacteriemia does exist at some time during the course of the infection is undoubtedly true, as the results of investigations have proved. That all cases clinically diagnosed as lobar pneumonia are due to the pneumococcus has not been verified. Why the organism is found in some cases and not in others is hard to explain. It may be due to, 1, improper culture media; 2, faulty technic; or, 3, obtaining the blood too late in the disease.

The studies here reported include twenty-four cases clinically diagnosed as croupous pneumonia. In two the diagnosis was revised, one turning out to be pulmonary tuberculosis and the other one bronchopneumonia. Cultures were taken, some as early as nine days before crisis, up to thirty-seven days after crisis. Thirty-six cultures were taken in all—sixteen before and twenty after crisis.

The following technic, including the preparation of patient, was followed: A tourniquet was placed around the arm, and as the vein of choice became prominent, the area over the vessel was touched with pure lysol. Luer all glass syringes were used. Seven c. c. of blood were withdrawn, five c. c. were placed in a flask containing 200 c. c. of bouillon and calcium carbonate. The contents were thoroughly shaken and placed in the incubator at 37° C. The bouillon was examined at the termination of twenty-four and forty-eight hours. This examination consisted in making a spread from the culture and staining with methylene blue.

The other two c. c. were mixed with agaragar which had been liquefied and poured into Petri dishes. Two dishes were made, each containing one c. c. of the blood. These were likewise incubated at 37° C., and examined at intervals of twenty-four and forty-eight hours. The pneumococcus does not grow well upon plain agar and even in our cases did not, as a rule, develop in these plates,

even though the blood was intimately mixed with the agar.

REPORT OF CASES.

In 45 per cent. of the total number of cases an organism was found in the blood. In 20 per cent. staphylococci; in 12.5 per cent. pneumococci, and in 8.33 per cent. streptococci were found.

Of the total number of patients in whom organisms were present 54 per cent. died and in 50 per cent. of those who died no organism was demonstrable in the blood. In 33.33 per cent. of cases in which pneumococci were found death occurred, in 25 per cent., staphylococci were present, and in 100 per cent. where streptococci were observed, death took place.

CONCLUSIONS.

1. As the cultures were taken upon varying days from the time of onset of disease, it cannot be said that one would be more likely to find an organism at one time before the crisis than at another.

2. The finding of an organism in a culture taken after the crisis or beginning of lysis is, in our findings, rare. It is, however, possible. This is probably due to "anti" substances during the growth of pneumococci, symbiosis has ceased to exist, and the organism dies out.

3. In one series diagnosticated as lobar pneumonia organisms other than the pneumococcus were found in the blood.

These other organisms include staphylococcus, streptococcus, and in one case an organism morphologically and culturally resembling *Bacillus typhosus*. It is possible that in some few cases the staphylococcus came from the skin.

4. The prognosis of uncomplicated lobar pneumonia is not altered by obtaining the pneumococcus in culture.

5. It is interesting to note in this series of cases, that most of the patients having the lesion on the left side recovered, while with one exception every patient having a lesion upon the right side died. It may be, however, only a coincidence. Of the four cases coming from the alcoholic ward three died.

All the cases studied were from the medical wards of the Philadelphia General Hospital.

NOTE.—In the case where a typhoidlike organism was obtained from the blood, it was motile; did not coagulate milk; did not ferment lactose or glucose; produced no gas; and was agglutinated by the patient's serum and by another known typhoid serum.

CONNECTION OF THE SEXUAL APPARATUS WITH THE EAR, NOSE, AND THROAT.*

A Contribution to the Study of the Subject.

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The proposition so well advanced by Mackenzie in 1884, and subsequently elaborated by him and others, that there was a definite physiological connection between the nose, throat, and ear and the sexual apparatus, was felt to be axiomatic by the

*Read before the Medical Society of the District of Columbia, October 23, 1912.

fathers of medicine, and even the lay observers in the old days. To such an extent was this true that all the old satirists and dramatists had much to say on this engaging subject, which has sound anatomical and physiological grounds for its basis. Thus, Aristotle mentions the weakening effect on the sight of the gratification of excessive lust. He likewise discusses castration and its effects before and after puberty, at which time particularly the coarsening effect on the speaking voice, perfectly familiar now as then, especially on the singing voice, was so pronounced if copulation was permitted, that the custom of infibulation, explained by Mackenzie in his scholarly paper, was devised to prevent the use of the penis for sexual purposes during the apprenticeship of the choir boys. In this connection it seems permissible to note that this practice exists among the Zulus and other warlike tribes in Africa, consequent upon their observation that even moderate sexual intercourse destroys the martial spirit and capacity. I had in my possession one of these contrivances, which are a species of male analogue to the celebrated *ceintures de chasteté* in the Musée de Cluny of Paris, whereby the crusaders fatuously thought during their absence to enforce chastity on their wives. The African device is very simple, being a little cap of woven grass, worn over the glans, fitting back over the corona, and effectually preventing any copulative use of the organ by those who aspire to the rank of warrior.

Among the modern writers, as before mentioned, Mackenzie has taken a prominent place, his bibliography having been of great service to me here, but the French and German investigators, with the wealth of material and the freedom of its use to be had in the continental hospitals and clinics, have added much to our knowledge and grasp of this interesting subject and ever present problem. Arviset, Isch-Wall, Joal, Peyer, Endriss, Trousseau, and Fliess have all given to the medical world the important results of their valuable and painstaking observations and conclusions, firmly establishing as facts the easily demonstrable theories herein set forth.

From the physiological to the pathological is but a short journey when the destination is the undue gratification of the animal desire; thus, we find abnormalities in the nose chiefly, but in the ear and throat in lesser degree as well, due to vicious practices of a sexual nature. Viewing the physiological aberrations first, these are better understood when it is realized that, as pointed out by a number of careful investigators (Voltini, Zuckerkindl, Hack, Mackenzie, and others) the inferior, part of the middle, and of the superior turbinate, and the tuberculum septi are covered with a tissue truly erectile, and closely analogous to the erectile tissue of the glans penis. Moreover, through the medium of the deep petrosal nerve and the sphenopalatine ganglion, connection is established between the nose and the sympathetic system. Holding ever in mind the function of this system of nerves, and its vasomotor control of the calibre of minute bloodvessels, and given cavernous spaces with interposed elastic fibres in the nose, it is easily seen that the psychic and nervous mechanism which produces that determination of blood into the cutaneous and sub-

cutaneous spaces of the cheek and forehead, known as "blushing," can under the same or similar influences send it to the erectile tissue of the nose, where the resistance is much less. The use of the olfactory sense in the lower animals, such as the dog, cat, gorilla, deer, and many others in determining the receptive attitude of the female needs but passing mention in suggestion of the rôle played by this part of the nose in the animal kingdom. By the same token the use of perfumes from time immemorial has been a conscious or an unconscious attempt to stimulate lecherous thoughts, though in times of moral decay women have, unfortunately, not been the only offenders. Cicero inveighs against the "spreading of unguents" and other odoriferous and erotic preparations upon the person, as the practice was much in vogue in the days of the Roman empire and the Greek republic, and not unknown to-day. Hence, we hear of "intoxicating" perfumes, well named, though few who use the phrase know the solid biological ground upon which the expression rests.

Flaring of the nostrils or distention of the alæ of the nose is seen in certain animal types of men and women, chiefly the former, when desire is excited, or when the object appealing to the lower instincts is about to be enjoyed, to borrow the phraseology of the East, as noted so frequently in the *Arabian Nights' Entertainment*. This is but a reminder of the lower animals which endeavor to catch the distinctive scent of the female desiring sexual appeasement. Again, the labored breathing characteristic with some types at the height of sexual orgasm, or shortly before, is the result of stimulation of the respiratory centre, presumably by engorgement of the vessels which is general at this time.

From the normal, or physiological view, the following peculiar cases are to be met: In the case of women whose noses are normal, satisfactory organs in other respects, at the time of the catamenial flow the turbinates become swollen, at times to the extent of exciting the reflexes of sneezing and coughing (Joal, Mackenzie), and this periodic, irritability may persist during pregnancy, and even lactation (Fliess). With the passing of the time for the normal flow, the nose returns to normal till the next period, when the phenomenon again occurs. Moreover, those areas in the nose called by Fliess for obvious reasons "genital zones," which Mackenzie noted years ago as especially sensitive and peculiar, have been cauterized in pregnant women only to result in speedy abortion. Similarly, in certain cases of "nasal dysmenorrhea" co-cainization of these same zones has removed the pain and other unpleasant features of that state. This theory has been further tested satisfactorily by Schiff in Vienna (Brettauer), where he has availed himself of the immense clinical facilities to excellent purpose. In alluding to these facts, Brettauer states that operative correction of nasal abnormalities cures some dysmenorrheas. Thus, epistaxis is occasionally encountered in boys at the approach of puberty, and redness of the nose was very marked in one of my patients each month after he had reached puberty. Among the older writers, Lusitanus reports the case of a man who frequently

sneezed at the sight of an unusually "comely maiden"; Bonet, Bartholini, and Vanderwiell also give instances of sneezing at or before the act of coitus, of which peculiar habit Mackenzie has had instances. Turning to the results of excessive indulgence in the normal function, and of unnatural habits, it has been observed by Joal and Mackenzie that onanism will at times produce epistaxis, while with the lecherous a flow of blood accompanies or follows coitus (Joal, Arviset, Hack, Isch-Wall). I have had under observation an epileptic in whom the height of sexual orgasm produced severe respiratory spasm and a seizure.

The marked increase in odor from the nose in ozenous cases at the time of the monthly flow, noticed repeatedly by Mackenzie and Trousseau, has been my observation to this extent, that those who had atrophic rhinitis without ozena, had it at this period of ovarian activity. I have thus far had the opportunity to notice the peculiarity of increase in odor, but regard the type of cases that I have seen as the more striking. "After a night consecrated to Venus" (Joal), patients who have had any nasal, aural, or laryngological abnormality invariably find this condition exaggerated.

The idea shared by the ancients, that venery was destructive to the singing voice, still prevails, and with excellent reason; in fact, I have personal knowledge of one singer of renown and superb physique, of no vicious habits other than rather frequent illicit intercourse, whose voice left him suddenly as far as singing in grand opera was concerned. Again, there is a singer on the grand opera stage now whose sexual touch is death to the voice of any young singer who ventures too often, so inordinate is her desire, and so powerful her sexual personality. It is, of course, well known that cohabitation with some women is fraught with much greater loss of vitality than with others, though this sapping of energy is not confined to men, women being occasional sufferers at the hands of men of the satyr type.

The swelling of the column of the neck, said to be observed as the result of the initial coitus in women, and an ancient test of successful entrance (the neck was carefully measured before and after), is of interest in so far as it relates to the frequent enlargement of the thyroid gland of girls from the ages of twelve to nineteen years, the beginning of the functional activity of the organs of reproduction. The frequency of this enlargement, unassociated with dental caries or tonsillar disease, has often struck me, as fully twenty-five per cent. of the white girls of this period of life who visit one clinic with which I am associated show this hypertrophy if closely examined. Obviously, many come for that very reason, though some are quite unaware of the abnormality. I have encountered no such cases in the colored race, though I do not aver that they are unknown.

Joal mentions the case of an asthmatic patient, of the usual neurotic taint, who improved rapidly at the beneficial altitude of Mont Dore, but at once, upon sight of his wife, who had come to inquire for him, had a violent paroxysm, and became steadily worse till she was forced to return home without him.

The engorgement of the turbinates and of that part of the erectile septum, with or without the copious discharge of mucus, presenting a perfect picture of the so called "hay fever" attack, epistaxis, sneezing, coughing, and the asthmatic seizures are all characteristic of both the physiological type of these aberrations, and under undue excitation of the sexual apparatus, may become also pathological by prolonging the effects, and leaving behind a permanent result instead of allowing the tissues to return to normal. The sensation of obstruction in the throat, choking, and the sensation of constriction in that region have long been recognized as normal to the pregnant state with some women, by modern observers as well as by the ancient. Shakespeare, who has invaded every field of human effort and knowledge, has a reference to this fact in *King Lear*. I have observed this in women who habitually suffer at the menstrual period. They describe the sensation as one of difficulty in taking a full breath, only to be relieved at the copulative act; however, it is not common and is almost always restricted to the voluptuous types.

It would be difficult to exaggerate the difficulty surrounding and hampering the laryngologist who attempts to secure such histories as this investigation necessitates, even where there is no taint of the unnatural or vicious; obviously, questions asked to lay bare anything like onanism, excessive venery, or a generally libidinous tendency must be based on almost positive knowledge. Moreover, the assumption that these various causes exist as the explanation of the abnormality seen in ear, nose, or throat must be conveyed with a degree of tact and judgment rarely possessed by most of us. The power of judicious inference, and grasp of the nature before us are nowhere in the field of medicine more requisite than here. In addition to the cases mentioned in the body of this discussion as illustrating certain phases of sexual influence, the following patients will serve to lend weight to the theories advanced herein:

CASE I. A woman, twenty-five years of age, intensely nervous, consulted me for an acute and absolute stoppage of the nose, accompanied by sneezing, lacrimation, and the symptom complex which we find in the so called hay fever cases. The engorgement of the turbinates was so severe that cocaine had no astringent effect whatever, though irrigation with warm saline solution, followed by a spray of twenty-five per cent. argyrol did give temporary relief. The condition persisted for several days, gradually lessening till ten days later, when another acute attack was experienced. Thus, she went along from week to week, being free for a few days, then again the victim of the most distressing asthmatic seizures at night, and the enforced mouth breathing in the day. The neurosis in the case was marked, and she herself explained her lack of nervous control as due to two severe shocks she had experienced in the past six years, one a death and the other a serious accident in which she had been dangerously and painfully injured. Finally, quite by accident, I was enabled to discover the cause of all her respiratory difficulties. She had been married over a year, and, while permitting the fullest indulgence in the marital relation, was preventing conception; this was the first stage of the nasal engorgement. The interval, during which she allowed Nature to have her way and became pregnant, corresponded perfectly with the time during which she was free from respiratory trouble; this was the second stage. Four months later, when the fetus endeavored to rise above the brim of the pelvis, thus becoming somewhat apparent to the public, she wore her clothing tight enough to prevent this revelation, and the reflex protest of the gravid uterus was almost immediately shown in the return of

her symptoms; this was the third stage. After the lapse of two years, she is again going through identically the same experience.

I have under observation now a woman who has the most annoying seizures of sneezing, about a dozen times a day and at night as well, though she has no nasal abnormality whatever, uses no compression of the uterus, and leads a life for the betterment of the fetus. The explanation would seem to rest upon the fact that there is a slight backward displacement and the rise of the uterus at this time (the fourth month) is slightly embarrassed. This is the only month during which the reflex has been observed. Fellows had a neurasthenic patient whose nasal stoppage and associated headache caused him much worry in his failure to discover the cause, but noting her pregnant condition (six months), and her subsequent relief at delivery, he vaguely surmised that the two conditions bore some relation of interdependence. His suspicions were confirmed, when, at the time of another attack of hay fever symptoms, six years later, he advised an examination by a gynecologist, who reported a retroversion, correction of which completely and permanently cured the nasal trouble.

CASE II. This is interesting as showing the effects of a purely mechanical cause producing the changes which are usually seen resulting from neurosis or some psychic element. A young man, of unusually puritanic cast and controlled impulses, noticed that if he happened to drink much, regardless of what the beverage was, before going to bed, or to cause in any other way his bladder to become unduly distended during the night, or to lie on his back during sleep (allowing greater pressure on the base of the bladder and the seminal vesicles), he would be awakened by the turgescence of his turbinates, and the consequent discomfort of the ensuing mouth breathing. Moreover, there was not always a coincident turgescence of the penis. Again, at stool, if the mass of feces was so impacted as to make unusual pressure on the prostate, engorgement of the turbinal tissue followed at once, though it subsided in a few minutes.

CASE III. A plasterer, twenty-eight years of age, was examined for relief of throat ache and difficulty in nasal respiration, which latter proved to be due to enormously swollen inferior turbinates; yet these structures under cocaine diminished to the thinness of an atrophic condition, except when he was suffering from an acute attack, during one of which a general surgeon had advised the ablation of these important organs. Upon close questioning, the man proved to be confirmed in his venereal desires, then averaging six copulative acts a week. In the recent past he had exceeded this by double for long periods at a time. The turgescence which had previously always followed or preceded the sexual act, or thoughts of it, now had become nearly constant, as the frequent transient congestion had at last left permanent damage behind in the form of dilated capillaries.

CASE IV. A young girl who had been taking on weight for some months, complained, in a voice totally devoid of resonance, that she had great difficulty in breathing through her nose, especially at night, and that the tone and quality of her voice had altered. Examination revealed nothing wrong with her respiratory apparatus, and plenty of space was seen for breathing purposes, though the mucous membrane of the nose and nasopharynx, and even of the larynx was rather relaxed. Her sinuses were devoid of content, and gave a clear transillumination. When first seen, she gave the impression of unmistakable vasomotor disturbance, or some form of neurosis, but I could not determine just what species it was. After a month's absence, she returned with the same history, and I again advised her to return to the physician who had referred her to me, and ask to be built up. Upon inquiry of him myself, I learned that she had not menstruated for

months at a time, and so marked was this tendency that he had suspected a premature menopause. I had asked him if she had any uterine abnormality, as I felt sure the exciting cause lay in that region. The nasal relaxation was merely the result of the congestion caused by Nature's search for a vicarious outlet, and this engorgement was at the time when she had previously experienced the catamenial flow. So intense was it that the resulting relaxation was sufficiently complete to last till the next congestive period. Similarly, Scott states that in those who have hay fever the symptoms are invariably worse at the menses.

CASE V. A woman of thirty-eight years of age, who seven years before had been subjected to a great shock at the sudden death of her husband while she was six months pregnant, complained of tinnitus aurium, and especially of paroxysms of sneezing. This latter the day before her monthly periods was always much worse. Her ear drums were somewhat retracted, and the Eustachian tubes slightly occluded, though inflation was easy. The nose showed nothing abnormal, but upon questioning her as to the condition of her uterus, she said that at her first confinement she had suffered a complete tear, which was not repaired at the time, and only imperfectly so some years later. She wore a pessary continuously, neglect to do which always made her sneezing worse, and increased the tinnitus. The degree of departure from the normal seen in the ears did not account for any of the aural distress from which she had suffered since the laceration, but especially since the formation of the dense scar tissue in the perineum, and the marked backward displacement of the uterus.

CASE VI. A very precocious girl of sixteen years of age, whose tonsils had been removed thoroughly by a competent laryngologist a year before, complained of pain in the throat radiating down the sternomastoid muscle and up into the ears; the tinnitus and slight deafness which accompanied this pain were especially distressing. The throat was normal to all appearances and the ears were perfect, yet the symptoms regularly appeared every three or four weeks, accompanied by a rise of temperature, at times as high as 101° F. This condition was very baffling, as she was organically sound, unusually intelligent, though very sensitive and nervous. Upon inquiry it developed that she had been menstruating nearly two years, but I found on keeping an accurate schedule of her attacks that all of them began the week following her ovarian activity. Owing to her sensitive nature and her desire to avoid worrying her parents, she had not complained always when suffering; so neither they nor I were able before this to get a systematic and regular list of the days and periods during which she was the victim of the long list represented by earache, deafness, throat ache, tinnitus, and fever. Her attacks lasted about two days as a rule, and the temperature was invariably higher in the morning, one of the temporarily confusing elements in this case.

CASE VII. A young married woman who had been slightly deaf in her left ear for three years, requested treatment for this condition. Her left inferior turbinate was so pale and yet so hypertrophied that this unilateral condition prompted me to ask if she had any uterine trouble, or if her menses were approaching. To the latter question she replied that they would occur in three days. Moreover, she volunteered the information that her hearing was always much worse at this time, and that now her good ear, previously immune, was similarly affected. Recently she had had amenorrhea and her deafness had continued in the good ear during the delayed flow, though the ear was normal in all other respects. The gynecological examination showed a prolapsed uterus, hitherto unsuspected.

CASE VIII. A boy of eighteen years of age, upon whose throat I had operated for enlarged tonsils several months before, began to have severe nosebleeds, and the attacks became more frequent till I cauterized twice a plexus of enlarged vessels at the anterior end of the septum. This hypertrophy had not existed longer than four months, as I had examined him at that time, but he had practised masturbation during this period till the congestion at each vicious act had so dilated the minute vessels, and so frequently, that the vessel walls had lost tone and remained stretched and thin, ready to rupture at any exertion or slight traumatism, including the vicarious copulative act.

CONCLUSION.

The most striking fact in the etiology of these aberrations is the element of neurosis, which is invariable save where a mechanical factor acts as the causative agent. Those who will not grant the rôle of causative agent to the nervous state, must as an alternative admit the striking coincidence and explain it away if they can. I wish especially to emphasize that many of these apparent phenomena result from perfectly normal impulses, and not necessarily from the vicious and weak yielding to ardent desire. Between the impulse and the intricate relay station for the forwarding of the order there is a break or another impulse crossing it.

It is my firm conviction that many more cases than we suspect escape our diagnoses, in whom this sexual element is the contributing if not the exciting cause of many of the common nasal and aural abnormalities of function, partly for the reasons mentioned at length in this paper, partly from the lack of time needed to study intimately such cases, and partly from failure of the patients to give us their full confidence.

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1633 CONNECTICUT AVENUE.

DISEASE OF THE NASAL ACCESSORY CAVITIES.*

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The accessory sinuses of the nose consist of the two maxillary antra, one on either side, two frontal sinuses, two sphenoidal sinuses, and the anterior and posterior group of ethmoid cells. Their lining mucoperiosteum is continuous with the mucous membrane of the nose, has ciliated epithelium, and comparatively few glands. Primarily, therefore, the underlying basal factor causative of morbid changes in the various nasal accessory sinuses, depends upon the essential fact that in a cavity with rigid walls, lined with mucous membrane and with limited outlets in contact with the atmosphere, obstruction of these outlets by swelling of the tissues in their close relationship, produces interference with proper drainage and ventilation. Should this condition be maintained for any length of time, purulent changes inevitably ensue.

The presence of pus in some of these sinuses is much more frequent than is generally believed. That this should be so can be readily appreciated

when one considers that some sinus inflammation occurs in every instance of acute coryza, in many infectious diseases, and in practically all cases of influenza; and while the large majority are transient and disappear without any treatment, yet in a considerable proportion purulent changes in the sinus mucosa remain dependent upon the severity of the basic etiological factor and the bacteriological character of the infectious elements present in the given case. In the presence of inflammatory changes of the nasal mucous membrane, or deviations of the nasal septum or irregularities of other portions of the nasal interior interfering with free drainage, repeated attacks of acute sinusitis inevitably produce purulent changes in a comparatively short period of time as a result of the retention of the nasal secretion with its accompanying bacterial infection.

Both from an etiological aspect and from the practical side of treatment, obstruction to free drainage and ventilation of all the sinuses is most important; for if free drainage in acute cases is not promptly obtained, it will be found that in a short time pus will be present. It is not necessary by any means that obstruction to drainage and ventilation should exist within the sinuses themselves, or at the exact location of the stomata, but more frequently it is the swelling of the intranasal tissues in their immediate or proximate vicinity which is the responsible factor in the presence of an infection. It may be mentioned, in this connection, that even in well established cases of suppurative sinusitis where the osseous walls are not the seat of marked necrosis, often the removal of any nasal obstruction will produce marked abeyance of the infection, and the inflammatory changes of the mucous membrane disappear without further active surgical measures.

In considering the important question of suppuration of these sinuses, the surgical and anatomical relation of adjacent tissues should be most carefully taken into consideration, and while I do not want at this time to consider the anatomy of the sinuses, yet it is desired to emphasize the fact that, before any treatment of a given case is considered, especially in relation to the surgical aspect, a complete knowledge of the anatomical relations of the affected sinus of the particular case should be ascertained by all diagnostic measures available. In view of the marked variations in the size and shape of the sinuses of all individuals this knowledge is imperative. It has seemed to me, that an important fact which is often overlooked in determining the development of purulent changes, is the tenuity and limited blood supply of the mucous membrane lining the sinuses. Often complicating infection of the surrounding tissues takes place, and consideration must be taken of the great variations in the diameter of the osseous walls; it being readily understood that a wall of extreme tenuity with the possibility of dehiscences being present, would naturally present a point of vital danger to the adjacent organ in intimate relationship with it.

It may be said that the symptom of purulent secretion in the nose is common to disease of all of the sinuses excepting where the ostia are closed, and the general symptomatology indicative of intra-

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nasal inflammation is more or less characteristic of all accessory cavity disease.

In suspected instances of sinusitis, the presence of pain in close relationship to the particular sinus affected is important, although severe spontaneous pain is rarely observed in chronic cases. This pain is often boring in character, frequently but a dull ache, and is largely influenced by the posture of the patient. That headaches and neuralgia, often treated unsuccessfully by various means, are the result of a suppurative sinusitis is a well established fact. Often characteristic is the fact that the pain is not continuous, but frequently disappears only to recur, and, most curiously, it is apt to be periodic, coming on at a definite hour each day, remaining for a longer or shorter period of time, and recurring at the same hour the following day. It must be remembered, that the degree of head pain is by no means necessarily indicative of the extent of the sinus involvement, for the modifications in the configuration of the particular sinus and its relation to the other sinuses, differ greatly in every individual. Upon this factor can be explained many of the bizarre phenomena relating to this most important symptom. I would also like to mention here that tenderness of the bone, increased by pressure over a sinus containing pus, may be a symptom of considerable diagnostic value, especially in relation to the frontal sinus, but on the other hand, the presence of pain at or near the point of emergence of nerves is of little or no significance and is in my experience a most misleading symptom.

We now recognize that various pathological phenomena relating to the eyes are in many instances the direct result of purulent sinusitis, and that this has a definite anatomical basis is well shown in the intimate relation existing between the orbital cavity and its contents and the sinuses. The occurrence of edema of the eyelid, orbital cellulitis, ptosis, partial and complete blindness has its very definite explanation.

Another question to which more attention should be paid is the effect of purulent sinusitis upon the cranial contents. The retention of pus with subsequent osseous and venous pathological changes produces, in some instances, well marked mental symptoms. Not only may cerebral abscess occur from this cause, but mental deterioration may in some instances follow. That this should be so can be readily appreciated from the intimate relationship existing between the sinuses and the base of the brain. I have no doubt that in the future the great importance of this relationship will be more clearly elucidated than at present. These serious symptoms of purulent sinusitis occur most frequently, in my experience, during an acute exacerbation of a chronic inflammation, and unless one obtains a clear history of the past condition of the patient, the grave character of some of the presenting symptoms will not be fully appreciated.

TREATMENT.

As to the treatment of these conditions, conservative measures primarily will produce results satisfactory to both patient and surgeon in the great majority of instances, and while various methods of surgical procedure will give equally good results in the hands of various surgeons, yet whatever

method may be advocated for any particular sinus, or individual case, the underlying factors essential to success are the maintenance of free drainage and the elimination of all "dead" spaces. If such can be obtained by methods which will conserve as much of the nasal mucosa as possible, especially the turbinal structures, then by all means should such methods be adopted, for as has been well said, "it is poor surgery to sacrifice the turbinal structures and destroy the mucous membrane lining, the nasal cavity, and the interior of the sinuses, when we can in many instances get drainage by less radical measures."

Intranasal treatment is undoubtedly efficacious in obtaining permanent curative results in the great majority of patients with sinus suppuration, unless there is well advanced osseous caries, which is infrequent, or if the type of the infection has produced excessive degenerative tissue changes in the lining of the sinus walls. By far the great majority of cases with pus in the sinuses can be permanently freed from symptoms by careful, intelligent intranasal treatment. Obviously this does not imply that all cases respond in this manner, for in a small percentage, and especially does this apply to the frontal sinus, external radical operation is imperative. At the same time, I am strongly of the opinion that a not inconsiderable number of cases that have been treated by radical operation and not always with favorable results, could have been greatly improved, and possibly cured by more conservative procedures.

A factor that must always be taken into the most careful consideration in obtaining drainage of any of these sinuses, is the tendency of artificial openings or artificial enlargement of the natural stomata rapidly to contract and defeat the objects desired. This is especially so as regards the sphenoidal cavity and maxillary antrum.

In suppurative affections of the maxillary antrum, a small puncture through the nasomaxillary wall should at first be employed, but usually the best results will be obtained by sacrificing a portion of the anterior end of the inferior turbinal and making a rather extensive resection of the lateral nasal wall in order that the tendency to contraction may be reduced to a minimum. If this procedure does not give the desired results, the exploration of the antrum via the canine fossa with a counteropening along the floor of the nasal cavity should be resorted to. The important point to bear in mind in the study of suppuration of this cavity is that the pus in the antrum here may not be primary, but may be draining into the antrum from the frontal sinus; therefore it follows that only when the source of the purulent supply is removed, will a permanent cure of the maxillary sinusitis result.

In the presence of symptoms directing attention to an affection of the optic nerve, most particular heed should be directed to the sphenoidal cavity and posterior ethmoidal cells. In the instance of the sphenoidal cell, a large opening for free drainage should be made in its anterior wall, well down to the floor. It is most difficult to maintain a patulous opening here, and it must be carefully watched and, if necessary, enlarged.

In the instance of long continued suppuration of

the frontal sinuses, with more or less retention of the purulent secretion and extensive pathological changes in the lining membrane, complicated by anatomical conditions which interfere with proper drainage, probably nothing short of radical external operation will suffice to obtain a satisfactory cure. It must be borne in mind, however, that in a not inconsiderable number of patients with this affection, less radical intranasal methods directed toward the establishment of free drainage will prove sufficient; such measures consisting of the removal of the anterior end of the middle turbinal with some of the anterior group of ethmoid cells. Intranasal methods of drilling or enlarging the nasofrontal duct are, in my judgment, attended with grave danger, due to the possibilities of endocranial injury. To perform surgical procedures of this type, in a region which does not allow of the working end of the instruments being in constant view, is to my mind to invite disaster.

Again, if the frontal sinusitis is of sufficient gravity to require such extensive intranasal manipulation, then it seems to me that it demands an external operative procedure for its relief. With the removal of the middle turbinate, the exposure of the ethmoid region, even far anteriorly, can be accomplished, and this must be done in every instance to facilitate drainage from the various ostia, if intranasal measures are to be successful.

CONCLUSIONS.

The conclusions which I have reached as to the so called radical operative procedures sometimes indicated in the presence of purulent changes in the nasal accessory sinuses, can be summed up as follows: In the presence of chronic osseous changes, or the development of active eye symptoms or endocranial complications, radical operation is imperative—and one should not temporize with anything less. In combined frontal and ethmoidal supuration, with more or less polypoid degenerative changes of the middle turbinal, external radical operation alone will effect a permanent cure. In frontal and maxillary sinusitis, where there is reason to believe that intercellular septa or irregular partitions exist within the sinus, it is impossible to obtain a satisfactory result other than with large external openings which will allow the thorough removal of such septa and the diseased mucous membrane. If, however, free drainage is present, and there are no signs of ill effect on the general health and only an occasional headache is complained of and the patient can be kept under observation, I think the risks of radical operation more than counterbalance the advantages.

Obliteration of the infected cavity in its entirety is the ideal aimed at in radical procedures. If that is not accomplished a cavity remains that may again become infected, with a repetition of the former morbid process. Previous, therefore, to a radical operation, especially upon the frontal sinus, the patient should be informed of the possible final results of the operative procedure, that such an operation like many others is not always successful, and that it may be attended with serious consequences; and, finally, that it is not to be classed other than as a serious major operation.

45 EAST SIXTIETH STREET.

URIC ACID CALCULI.*

How to Prevent Their Formation by the Use of Phenol.

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It is not the purpose of this paper to discuss the method of production, nor the exact point at which uric acid is formed. These points have been fully covered in several of my former papers on this subject, in all of which it has been argued and shown that uric acid is formed normally, in the secretory cells lining the uriniferous tubules, that it is its proteid antecedent only that exists in the blood.

Uric acid, as we all know, is one of the normal end products of the oxidation and reduction of the proteid molecule, and as such, is one of the essential products carrying nitrogen out of the body.

Owing to the fact that this acid has a function to perform, just as it drops from the renal cell into the lumen of the uriniferous tubule, it is both a secretory and an excretory product.

As the uric acid passes into the lumen of the tubule it comes in contact with the neutral phosphate of soda, followed by the formation of sodium urate and the acid phosphate of soda, which latter gives to the urine its normal acid reaction.

When all the uric acid is thus transformed, the system is working normally, so far as this end product is concerned, and no free uric acid escapes from the uriniferous tubules. It is only when the uric acid is overproduced or formed in larger quantities than can be fully transformed into urates that it is found free in the urine, and then it becomes a pathological product. Whenever it is overproduced, it often masses together, with the formation of large or small calculi. When this occurs, it often becomes unduly interesting to the patient and calls for therapeutic intervention.

Furthermore, it is not the purpose of this paper to discuss the question of how best to combat the overproduction of uric acid, but to elucidate the method by which phenol prevents the massing together of the uric acid crystals and thus intercepts the formation of uric acid calculi.

Many years ago it was a well known clinical fact that the administration of one or two grains of pure phenol *per os* three times a day would prevent the formation of uric acid calculi; that it would also arrest the recurring attacks of renal colic. That this phenomenon is no mere coincidence has been abundantly established by the uniformity and certainty with which such results have been attained in a very large number of cases.

How that this empirical result could be explained upon a logical and scientific basis was for many years an unsettled problem. With our ever progressing knowledge, however, in relation to the chemical mutations which regularly take place in the alimentary canal and urinary channels, much new light has been thrown upon the chemico-physiological phenomena of the human system.

As a result, it has become possible to formulate a theory which will fully and clearly explain the

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action of phenol, so long recognized as a valuable therapeutic factor in this class of cases.

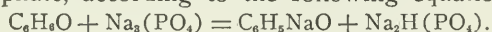
Phenol, like alcohol and many other compounds, is known to possess the property of coagulating albumin; consequently it is not good chemistry to introduce carbolic acid directly into the blood. In fact, it must be impossible even to take phenol, in its own form, through the wall of the alimentary canal into the circulation. On the other hand, there is considerable tangible evidence that phenol is often found in the urine when this drug has been administered *per os* or used as a surgical dressing.

At first these opposing conditions seem to be almost irreconcilable; but by adhering strictly to fixed chemical laws, these apparent contradictions are easily made to harmonize, without introducing any unknown biological factors.

Phenol, like many other substances, contains replaceable hydrogen atoms; which circumstance enables it to unite with basic substances and form carbolates of the same. Following the same laws that have been laid down for the action of the mineral acids in the alimentary canal, the action of carbolic acid can similarly be elucidated.

The strikingly brilliant results attained in clinical experience by the internal administration of this acid in the condition of overproduction of uric acid no longer begs for an explanation. The phenol, when it reaches the stomach and intestinal canal, reacts upon the sodium, potassium, and other saline compounds contained in the foodstuffs, in a manner similar to the action of the mineral acids, and forms carbolates of sodium, potassium, etc. The most likely combination is that with the sodium compounds, because these are the most abundant in the foodstuffs in the digestive tract.

The phenol reacts upon the normal sodium phosphate, and forms carbolate of soda and the disodic phosphate, according to the following equation:



Similar combinations can be effected with potassium, calcium, and other compounds found in the alimentary canal.

The carbolate thus formed can be absorbed and taken into the blood stream without precipitating the proteid elements. While the phenol salt is contained in an alkaline menstruum like the blood and fluids of the tissues, it has no occasion to be decomposed and have the carbolic acid reformed.

Whether the various carbolate salts have any irritating action upon the system, more than is common to inorganic compounds in general while they are making their transit through the body to be eliminated by the excretory organs, is a question open for discussion. Having already affirmed the law, however, that all inorganic compounds act in the organism alone by virtue of their mechanical presence, it seems reasonable to assume the same for the pseudoorganic class of compounds to which carbolic acid belongs, to wit, that the carbolate salts are not decomposed in the blood, but are powerful mechanical irritants to the system, equal to most poisons of the strictly inorganic¹ substances.

While these phenol compounds are not in the strict sense "mineral" substances pure and simple, so far as their action, both clinical and experimental, is able to prove, they follow the same law of action that governs the purely mineral compounds, and not those which govern organic elements.

It is a well known fact that certain saline compounds, when added to freshly drawn blood, prevent its coagulation. It is also equally well established that, when carbolic acid has been taken in considerable quantities, the coagulating power of the blood is retarded. Presumably this is due to the saline form of the carbolate compounds formed from the acid in the alimentary canal; for, on the other hand, the uncombined carbolic acid, when brought directly in contact with blood, coagulates it.

Taking all these observations together, it appears quite logical to assert that the mechanical presence of the carbolate salts in the circulating blood can, like that of other known saline compounds, so affect the proteid bodies contained in the blood that the coagulating power of the latter is decreased or altogether arrested.

Further, it might be supposed that the presence of the carbolate so changes the metabolism in general, in connection with these abnormal conditions named, that the final product of oxidation tends to become *urea*, instead of stopping at the lower product, *uric acid*.

This, however, cannot be the actual method by which the formation of uric acid calculi is so suddenly arrested and the superacidity of the urine changed to a less intensely acid reaction. For the total quantity of uric acid formed and to be eliminated from the system daily can be reduced only by cutting down the quantity of food stuffs ingested; or by increasing the intake and the distribution throughout the system of oxygen, thus increasing the rapidity and thoroughness of the oxidation processes.

There is no evidence whatever, direct or indirect, that carbolic acid, when introduced into the alimentary tract, alters the oxygenating capacity of the system or regulates the food supply. Therefore, here as in all other instances, the intake of the foodstuffs must always be kept within the oxygenating capacity of the system, if true repair is to be fully and permanently established and the overproduction of uric acid effectively prevented; and the true method of action of carbolic acid, in the condition known as overproduction of uric acid, must be sought in another direction.

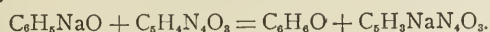
While the alkaline carbolates are fairly stable in alkaline menstrua, they are very easily decomposed, and the carbolic acid is set free, in a neutral or acid medium. The carbolates, after having circulated through the system, pass out of the blood by a process of filtration through the walls of the capillary bloodvessels which constitute the Malpighian tufts in the kidney, in a manner similar to the escape of all the other mineral salts from the blood stream.

From this point, the phenol salts pass down the lumen of the uriniferous tubules with water and other salts, until they reach the location at which uric acid is constantly being formed and given off

¹We here allude to the different principles of classification adopted by chemists as to what should be called "organic substances." The term is considered here in its ancient acceptation, the compounds normally found only in living organized structures, animal or vegetable. According to this definition, phenol is "inorganic," although classed as "organic" by those who take this term to signify "containing carbon."

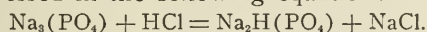
by the excretory epithelium into the cavity of the uriniferous tubules.

At this point the carbolates come in contact with free uric acid, and the two react upon each other. Decomposition of the salt ensues, which, in the case of the sodium carbolate, results in the formation of a somewhat soluble urate of soda and the liberation of carbolic acid as expressed in the following equation:



This formation of the urate of soda prevents the transmutation of the overproduced uric acid into calculi, thus dispersing the painful symptoms almost as if by magic. This action of the carbolic acid is made possible by the fact that the food stuffs contain a surplus of soda compounds which ordinarily remain unabsorbed, and consequently pass out of the alimentary canal with the feces.

In the natural working of the digestive process, the normal sodium phosphate is acted upon by the gastric hydrochloric acid, with the formation of disodium hydrogen phosphate and sodium chloride, as expressed in the following equation:



The later salt is not decomposed in the urinary channels by the uric acid, but passes off with the urine unchanged.

When carbolic acid is administered, on the other hand, some of the surplus soda in the food stuffs in the alimentary canal is acted upon by the phenol with the formation of disodic phosphate and a carbolate of soda instead of sodium chloride.

The carbolates are easily absorbed and pass to the kidneys, where they are readily decomposed by the uric acid, thus using up the overproduction of the latter, and thereby preventing its deposition in the form of calculi, as shown above.

When the quantity of phenol taken is small and the elimination somewhat slowly effected, the odor of carbolic acid is not perceptible in the urine, but just as soon as a considerable quantity of the acid is taken, the odor of carbolic acid becomes apparent in the renal secretion. Furthermore, its presence in the urine can be detected chemically. Thus, the laws of chemistry and physiology have furnished quite a complete explanation for the good clinical results which have so frequently been obtained by the internal administration of phenol in conditions in which uric acid is being overproduced.

It also helps to clear up many of the hitherto unexplained phenomena associated with phenol poisoning when the drug has been used as a surgical dressing. Ordinarily, in a wound, the carbolic acid coagulates the proteid substances that it comes in contact with, and thus prevents its own further entrance into the general circulation. But when it is used in large quantities or remains in quantity for some time in the dependent cavity of a wound, the carbolic acid may unite with the soda or other mineral compounds contained in the fluid exudations of the wound, and thus render possible its access to the circulation.

In rare instances the ordinarily fibroplastic barrier between the surface of the wound and the underlying sound tissue is imperfectly formed. When this is the case, the phenol compounds are rapidly drawn into the circulatory channels, and pass on to

the kidneys, to be eliminated in the urine, as before explained.

If carbolates are absorbed and pass to the kidneys more rapidly than they can be eliminated with safety by these excretory organs, these salts, by virtue of their irritating properties and their ability thereby to disturb proteid transmutations within the body, cause a disintegration of the red corpuscles of the blood. The pigment contained in the hemoglobin is set free, and an acute and often fatal hemoglobinuria is produced.

46 WEST EIGHTY-THIRD STREET.

MEDICAL EFFICIENCY.*

BY IRA S. WILE, M. S., M. D.,
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In these days of practical life when a wave of commercialism appears to be sweeping over the country, it is interesting to note that some of the terms ordinarily applied to industry are to be attributed to medicine. "Efficiency" appears to be part of the commercial slogan, and every now and then one hears the term "medical efficiency." It occurred to the writer that it might be well to ascertain, if possible, what medical efficiency really is. Apparently the term "efficiency" is vague and has various meanings for various persons. As a whole it is an idea laden with the concepts of proficiency, thoroughness, and accomplishment.

In a desire to secure various opinions, I have written well known workers in different fields to ascertain their views upon medical efficiency.

Dr. Alfred Stengel regards it as not having any definitely established significance. Dr. Luther Gulick, on the other hand, states that the ratio of effort to result is the measure of efficiency. "Medicine should strive to be effective; efficiency is not the right idea in medicine."

These two views are not in accord with such opinions as those expressed by Charles Richmond Henderson, who, in brief, states: "1. An efficient physician is one who is successful in healing the sick, surgery being included. 2. Medical efficiency in the social sense means chiefly the prevention of disease."

Mrs. Florence Kelley refers to efficiency in the individual physician as "dependent upon skill in diagnosis, a moral quality which compels the patient's respect and obedience, wisdom in applying therapeutic agencies, and honesty in instructing the patient and those who belong to him how to avoid recurrence and transmission of disease." "Community medical efficiency" she differentiates as a matter of organization and distribution of results dependent upon the organization of the medical service as the most important of all services, national and international, and she further states: "In the light of this belief, our present competitive organization of the profession appears hideously inefficient and actually preventive of efficiency."

Dr. Edward Devine makes the same distinctions as to individual efficiency as dependent upon "skill in diagnosis, technical equipment, and skill in treat-

*Read before the American Association for Clinical Research, New York, November 9, 1912.

ment, as opposed to medical efficiency in the community, which depends upon high standards in the medical profession, adequate laboratories for research, and an active policy of public sanitation working toward the control of infection on the one hand and public education on the other." He further suggests that an index for the medical efficiency of the community would be the death rate.

Dr. Richard C. Cabot regards medical efficiency as "the accomplishment of what medicine intends or proposes to do." He recognizes that this will vary from age to age. There is a wise provision in his comment that "efficiency demands more of a physician in New York than in Albuquerque." He further states, "I do not myself think very much of the word efficiency, it is a 'safe and sane,' a standpat rather than a progressive word. Any great man or great profession is far more than efficient—one may be efficient without being honest, self-sacrificing, humble minded, ardent, courageous, or imaginative. I have known very efficient surgeons who have had none of these qualities."

In the opinion of Dr. James P. Warbasse, "medical efficiency is the quality of accomplishing effectively the function of medicine." The function of medicine he regards as: "1. The prevention of morbidity; 2, the allaying of physical suffering; 3, the increasing of physical efficiency in the individual units of society; and, 4, the prolongation of life."

Dr. W. T. Sedgwick states: "Since for me medicine is the healing art (*Heilkunde*), medical efficiency is effective healing or successful curative medicine. Effective surgery is probably its most striking and successful hemisphere. From another angle medical efficiency is effective medical practice—the skillful application of medical knowledge to further the science or employ the arts of curative medicine."

As the estimate of a man dealing with social service work in hospitals, Dr. Michael M. Davis, Jr., presents some important questions. He regards "the measure of efficiency as the relation between results achieved and energy expended; or, in other words, between results and cost." He believes that "medical efficiency should be determined by answering two questions: 1. What results are obtained with relation to the disease? 2. What results are accomplished in improving the human beings who come for cure?" He admits that it is usually impracticable to answer these questions definitely in relation to the physician's private practice. In considering the work of an outpatient clinic or a hospital, he regards it "possible to define medical efficiency as the proportion of cases successfully treated to the total number of cases treated." In hospital practice he believes one of the greatest causes of medical inefficiency to be the too early discharge of patients from the wards. From the standpoint of society as a whole, he again defines medical efficiency to be in inverse ratio to the number of persons who die from preventable diseases.

"My idea of human efficiency," writes Dr. Charles A. L. Reed, "is that it implies the ability on the part of an individual to develop the laws and resources for the prevention and care of the diseases, and the power to promote human welfare by the

practical application of any or all of the sciences embraced under the general title of medicine."

Medical efficiency must be considered with reference to the various phases of medicine, such as etiology, pathology, symptomatology, prognosis, and treatment. It is obvious that the etiological factors in disease condition the pathology, the prognosis, and the treatment. Similarly it appears clear that symptomatology has marked relations to diagnosis, prognosis, and treatment. Treatment itself may bear a distinct relation to prognosis on the one hand and the etiology of similar conditions on the other hand. The careful and effective cure of acute diseases lessens the number of permanent complications and chronic crippling sequelæ.

Bearing these few facts in mind, medical efficiency may be viewed from the standpoint of cure, and to this extent the efficiency depends largely upon individual physicians. The second phase of efficiency views the subject from the point of preventive medicine, and constitutes a social problem. There is a mixed type wherein cure and prevention are closely bound together as would be evidenced in the use of antitoxine for both the cure and prevention of diphtheria. It is noteworthy that the cure of individuals depends upon the effectiveness of an individual physician, and the efficiency will be manifest and dependent upon the intelligence, judgment, and skill of a particular physician. This phase is especially exhibited in the relation of the surgeon to problems of amputation where the idea of conservation and conservative procedure is of paramount importance.

The widespread prevention of disease depends not upon any single physician, though his efficiency may spread its influence over a limited neighborhood, but upon the profession as a whole.

A moment will convince any one that medical efficiency, either for the individual physician or for the profession, depends upon many extraneous factors. General education and widespread traditions have their influence upon medical standards. Natural climatic conditions or unnatural conditions in housing or grouping of people may have a pronounced effect upon the efficiency of the profession. The mere legal status of a community, in so far as it permits child labor, night work for women, and fatiguing hours of work for men distinctly limits the efficiency of the profession in eliminating accidents and diseases. Unrestricted marriage laws bear their grist of defectives and weaklings. To the same extent, industrial progress which does not afford protection or safeguard employees in the matter of ventilation, elimination of dust, or the use of safety devices, correspondingly militates against professional efficiency. It sounds strange to say that general prosperity with abundance of funds lessens the health of the community, but the relation of this condition to medical efficiency is clear in view of the increased use of alcohol, the spread of venereal diseases, the attacks of gastrointestinal disturbances. Keen competition with all its mental strain has made insanity a problem of great importance.

Political organizations that interfere with the wise administration of health ordinances or which refuse to sanction or actually do interfere with the

promulgation of hygienic laws, stand in the way of medical efficiency. Sectarianism in medicine, the attitude of conciliation toward charlatanism, the winking at irregularities and criminalities are positive factors in retarding the progress of efficiency in the medical profession.

Recognizing the social and economic forces which at present interfere with medical progress in addition to the internal difficulties within the profession and our low standards in education, it is well to consider what the essentials are that promote medical efficiency. While analogy is not complete, let us consider the application of the Twelve Principles of Efficiency for Industry, as laid down by Harrington Emerson.

1. *Ideals.* It is needless to state that ideals represent part of the backbone of professional life. The desire to cure quickly and restore individual patients to health is common to all physicians. The spirit of sacrifice and unselfish devotion is widespread. The spirit of education, the love of books, research, investigation, and contact with the world so as to secure an intimate knowledge of living conditions, has always existed. The great advance in thought that leads to social service, that regards medicine as a public function, that makes the physician a community tool, is gaining in force. The ideals of preventive medicine were never more keenly felt than to-day.

2. *Common sense and judgment.* It is a fact of common knowledge that the medical profession lays no claims to infallibility. With the best of training, errors will arise. Sound judgment and the application of common sense to individual problems or to social difficulties will always be necessary. It is essential to realize that the welfare of the mass is above the welfare of any class. In raising the standards of health in the community and eliminating disease, the medical profession is limiting its sphere of curative activity. Judgment determines that prevention must be the future activity; that it is more rational to limit the spread of disease than merely to consider each patient an end in himself. There is an appreciation of the fact that scientific opinion changes from time to time and that much thought is necessary to select those apparent advances which are to be of permanent value, as opposed to those which will represent only transitory states of scientific progress. Quackery and pseudoscience must be submerged through the exercise of common sense and the spread of rational ideas.

3. *Competent counsel.* The sphere of medicine has developed so rapidly that it is impossible for a single mind to grasp all that it contains. The development of specialties has been a natural outcome of this widened knowledge. Surgery, obstetrics, and various other specialties within medicine afford abundant opportunity for utilizing competent counsel as individual cases demand. In the social aspects of medicine it has now become necessary to secure the advice and cooperation of various special consultants, who in previous years were ignored. Sanitarians, engineers, lawyers, educators, social workers represent new types of specialists, whose counsel must be sought in working out problems of professional efficiency. The doctor is not essentially a sanitarian, nor an educator, nor a law-

yer, yet for the education of the masses, for the securing of constructive hygienic legislation, and for sanitary improvements competent counsel must be secured to enable the doctor to advise in a safe and sane manner the medical advances necessary to promote communal welfare.

4. *Discipline.* Discipline is especially important within the profession so as to promote harmony. There should be every encouragement of local, State, and National organizations that have at heart the welfare of the medical profession. Every effort should be made to establish a high order of ethics and conduct within the professional ranks. It is a professional duty to cry out against irregular, dishonest, or criminal practitioners. The medical profession must discipline itself in order that it may be free from lay criticisms and that it may freely criticise similar irregularities or criminalities as they may appear in every walk of human endeavor.

5. *The fair deal.* Personal jealousy must give way to a more altruistic jealousy for general accomplishment. The recognition of the value of the services of the physician should be based upon its relation to the general welfare, and not upon the annual income. The fee splitting evil with all its dark and dismal records must be overcome. Common honesty in the profession itself and fairness to the patient involve a recognition of the necessity of above board dealings which will erase this unfortunate blot on the page of medical history. There must be honesty to patients in hospitals and clinics so that the abuses at present existent may cease, and the patients receive such treatment as will restore them to physical health without the sacrifice of unnecessary time and without plunging the families of the patients into further despair. It is important at this time to urge the establishment of institutions only as they may be necessary for the welfare of society without any relation to the possibilities of giving some doctors an opportunity for clinical work. There should be adequate institutions for lessening disease in its more dangerous phases. By controlling the spread of infective diseases, the need for hospitals for chronic sufferers eventually will be decreased. It seems quite strange to find that few hospitals have facilities available for the cure of acute venereal diseases, though all are willing to receive the victims when operative procedures become necessary. There are insufficient institutions for contagious diseases, and the numerous chronic conditions which make patients unwilling drains upon their families and social incumbrances. The question of the type of institutions to be established requires fair consideration.

6. *Records; reliable, immediate, and accurate.* Without placing great stress upon the personal records of individual cases, there must be established a full system of birth and death registration, together with the report of contagious and communicable diseases. The medical profession should hasten the day when reliable vital statistics will exist throughout the country, so that there will be a sound basis for the determination of health policies. Vital records form a potent and essential factor of medical efficiency and constitute the basis of argument and constructive legislation.

7. *Planning and dispatching.* Haphazard measures in the establishment of hospitals and dispensaries must cease. All institutions for the public health and welfare should be located after due thought and in accordance with sound planning with reference to the needs to be met. The needs of special institutions require different locations and varying amounts of land. Transportation facilities demand attention as well as topographic and climatological conditions. An industrial clinic such as that in Milan would require little ground space, while an institution for the insane would necessitate an extensive acreage. There must be carefully planned campaigns of education, scientific outlines for sanitary surveys, and the general encouragement of public health measures. After thorough planning, argument, appeals, and education are prerequisites for the legislation that is so necessary to bring the desired institutions into tangible existence.

8. *Standards and schedules.* The curricula of medical schools are gradually being improved, but they require more standardization than is at present possible with the laxity of State laws relating to medical practice. The nature, the effectiveness, and the control of postgraduate work along clinical and laboratory lines must be supervised that they may no longer serve merely as an opportunity for the exploitation of serious minded students. Action is necessary to determine what shall constitute specialism. It is time that a halt was made in permitting poorly equipped individuals to announce themselves as specialists in any walk of life. In medicine a specialist should have superior merit, but the basis of this must be carefully considered. We may suggest also that there should be some standardization of hospitals and dispensaries with regard to their fees and with regard to the various types of patients they will treat. There must be arranged more ample accommodations for the great self-respecting middle class, whose means are insufficient to warrant the expenditure now required from the private wards, but who do not represent the class that is catered to in the public wards. The whole subject of social service requires thorough investigation as to methods and results in large and small communities that it may be developed to a high state of efficiency.

9. *Standardized conditions.* Equality of opportunity is the essential basis of democracy. In medicine there should be a uniform medical practice covering the United States. The man who is competent to practise in New York should be competent to practise in California, and the man incompetent in New Orleans should be incompetent in St. Louis. No person should be permitted to practise without due examination, theoretical and practical, in such important subjects as anatomy, physiology, diagnosis, obstetrics, pediatrics, and hygiene. These are all basic subjects and of greater moment than the question of sectarian treatment. Public medical positions must be taken out of politics, and civil service appointment should enable communities to secure men whose information and training are sufficient to enable them to perform the duties of the offices they seek.

10. *Standardized operations.* It is wholly practical and exceedingly desirable that model units be

established by careful study for hospitals, dispensaries, sanatoria. The particular plans that are necessary for institutions dealing with special classes of patients, such as the tuberculous or the insane demand standard requirements as minimum. It is possible to standardize methods as related to water supply, sewage disposal, city lighting, and industrial environment, but these can only be worked out by the cooperation of the medical profession with allied professions. As there are various standard procedures adopted by chemists, The American Public Health Association and similar organizations, so methods of research should be standardized as far as may be practicable.

11. *Written standard practice instructions.* In order to secure standards of efficient practice, it is necessary to review ordinances and State regulations in so far as they may deal with the problems of disinfection, fumigation, and quarantine. Some standard nomenclature should be generally adopted as the international classification of the causes of death. Special details in treatment demand more carefully written textbooks with full explanations of methods that may be grasped by students. Methods of public education through the press, public lectures, demonstrations, and traveling exhibits require the study and support of the profession.

12. *Efficiency rewards.* The laborer is worthy of his hire. Physicians' fees must be regulated with fairness to physician and patient alike. Superior service is entitled to superior reward. There must be adequate compensation for public service rendered by medical men. There is no reason why municipalities should be parsimonious in their dealings with those servants who are essential for conserving public health. Contract practice with its paltry fees is responsible for much inefficient medical service and for many of the criticisms of personal medical inefficiency. There is a large question as to whether medical charity should not be totally abolished and all physicians in attendance upon public patients should not be paid from the public funds. This step has already been taken in many municipalities and in the future will spread throughout the country. The present British Insurance Act represents a difference of opinion as to the amount of money the public treasury can afford to pay the profession for caring for the health of families with limited increase.

It is patent that medical efficiency bears a marked relation to these twelve principles of efficiency. They must all be considered in order to accomplish the best results for the mass of the people. When social medicine becomes thoroughly efficient, the individual physician may possibly have less to do, because there will be less illness to be cured, but there will be an increased opportunity for the profession to conserve health, and this represents a higher ideal in medicine. The personal efficiency of physicians will be enhanced through the raising of the standards within the profession, through the demand for fewer physicians, and through keen competition for securing places of usefulness.

The day of medical efficiency thus interpreted is not near at hand. Utopia must result before all the qualifying and retarding conditions are removed, and the millennium may come before medical ef-

iciency becomes an accomplished fact. The profession with all its ideals looks forward to its own development and is constantly striving to hasten the day when there will be no uncertainty as to what constitutes medical efficiency.

230 WEST NINETY-SEVENTH STREET.

EXTRASYSTOLES.*

Clinical Observations; Their Etiology and Treatment.

BY SELIAN NEUHOF, M. D.,

New York,

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Extrasystoles (more properly premature contractions¹) consist of anticipated cardiac contractions occurring before their normal rhythmic time. Such anticipated beats are responses of the heart to new abnormal impulses. The latter may originate in the auricle, in the ventricle, or in the auriculoventricular bundle, and the different origins may be graphically recognized in good polygraphic tracings or in electrocardiographic curves.

Isolated extrasystoles are readily recognized by the ordinary methods of clinical examination. The stethoscope placed at the cardiac apex detects one or two short, sharp sounds representing the extrasystolic beat; these sounds are usually followed by intervals (compensatory pauses) longer than those between the rhythmical beats. If at the same time the radial pulse is palpated, a small beat may be felt corresponding to the premature contraction heard at the apex. In so called frustrant contractions the extrasystole does not raise the aortic pressure sufficiently to produce a pulse wave, hence no corresponding beat is felt at the wrist and only one extra sound is heard at the apex.

Statements are found in the literature that extrasystoles are usually accompanied by painful or other sensations in the chest. In the cases I have observed this has been an infrequent occurrence. The sensation, when present, was that of palpitation or of a slight feeling of faintness. The great majority of the patients did not know of the presence of any cardiac irregularity.

Atropine sulphate, one fiftieth grain, injected hypodermically, is the test used to determine functional extrasystoles. In some cases I carried out this procedure; if the arrhythmia disappeared, it was looked upon as functional. In other patients the arrhythmia was temporary and the atropine test could not be used.

It has not been possible definitely to classify the etiology of every case of extrasystole; yet the study of this arrhythmia in conjunction with such signs and symptoms as dyspnea, presence or absence of decompensation, size of the heart, etc., and with observations on blood pressure, stomach and intestinal disturbances, etc., has often yielded information of prognostic and therapeutic value.

To illustrate the various causes and types of extrasystoles and their comparative importance in the

clinical syndrome, short case histories and accompanying discussions follow.

CASE I. I. B., aged fifty years, had always had a regular pulse. With the onset of a mild grippe bronchitis occasional extrasystoles developed. Her heart, blood pressure, and urine were normal, there was no decompensation or circulatory disturbance. Her temperature was normal on the second day; the extrasystoles disappeared and did not return.

This case is typical of premature contractions which occasionally accompany the onset of mild infections, but are more frequently found at the time of critical defervescence. Severe febrile infections may be accompanied by myocarditis, marked circulatory disturbances, and arrhythmias, but it does not appear possible that temporary extrasystoles accompanying mild fevers or crises and then disappearing can be evidence of myocardial involvement. The cause of this type of arrhythmia is not known; it probably acts by interfering with neurogenic control of the normal heart rhythm. These extrasystoles are not of serious import and require no treatment.

CASE II. Miss B. S., aged twenty-six years, was a very robust looking woman. Death and sickness in the family had made her worrisome and irritable. For six months she had had constant stomach symptoms, gnawing pains to the left and above the umbilicus, and frequent "night" pains in the epigastrium. Accompanying the pains she sometimes had paresthesia of the extremities, and vasomotor symptoms, flushing of face and hands. For about two years physicians, not the patient, noticed cardiac irregularities.

Except for extrasystoles the circulatory apparatus was normal. Polygraphic tracings showed that the extrasystoles were auricular. They could be made to disappear for a few minutes by rapid forced breathing.

The patient's gastric symptoms were suggestive of ulcer. In the absence of decompensation or of any history pointing to any cardiac affection, the arrhythmia was apparently functional and due to abnormal reflexes caused by her stomach condition. The reflex path in these cases has not been determined. I have found the breathing test above described of occasional value in determining so called functional extrasystoles.

In this case treatment was directed entirely to the stomach. Upon improvement of the latter, she was allowed to follow her usual occupation and advised to avoid excitement. When last seen the frequency of the extrasystoles had diminished.

CASE III. Mrs. S., aged sixty-five years, had been under treatment for her stomach for several years. She suffered from splanchnoptosis. When indiscreet in diet she was immediately seized with violent pains at the umbilicus, nausea, and anorexia. She had marked arteriosclerosis and myocarditis; the urine was normal. During the last gastric attack, extrasystoles (ventricular) were present for the first time.

Because of her age, and cardiac and arterial condition, it had seemed that the extrasystoles would be forerunners of more serious arrhythmic disturbances; but the extrasystoles disappeared with the disappearance of the gastric symptoms.

CASE IV. Mrs. A. L., aged seventy-six years, had marked splanchnoptosis. For one year she had attacks of severe "abdominal" colic lasting several hours; this was sometimes temporarily relieved by belching. For several months she had been on a vegetable diet with increase in the severity of the stomach symptoms. She had arteriosclerosis, the systolic blood pressure was 160, the area of cardiac dullness was diminished, there was a soft systolic murmur at the apex. When first examined there was no edema of the legs. At the beginning, frequent extrasystoles were present; these with her advanced age, arteriosclerosis, and pains, made it appear probable that she was suffering from some form of cardiac angina. Digitalis was given; she was put upon proper diet, alkaline powders, and atropine. Within a few days the extrasystoles

*Read before the Harlem Medical Society, New York, December 4, 1912.

¹Lewis: *Clinical Disorders of the Heart Beat*, p. 39, 1912.

disappeared, the abdominal colic became less frequent and painful, and in a few weeks disappeared entirely. Shortly after the arrhythmia was gone, slight edema of the legs developed, lasting several weeks. Here temporary decompensation (edema) followed the arrhythmia; this was apparently due to the patient's advanced age and arteriosclerosis.

The foregoing cases (II, III, IV) illustrate a large group in whom extrasystoles originate apparently reflexly in gastric disturbances. Most writers² affirm that extrasystoles are found in gastric disorders only when the stomach is full and distended, and are caused by the distended organ pressing against the diaphragm thus embarrassing heart action and circulation. Others believe that absorption of toxic products from the stomach is a causative factor. Lewis³ states that the connection between extrasystoles and digestive disturbances is not fully understood. In my own experience, extrasystoles were most frequent when pain was a prominent symptom of the gastric condition. For example, in the foregoing three cases, there was no gastric distention, in fact the patients suffered from severe anorexia and were under fluid diet during the time the extrasystoles were present. When the patients improved and could eat liberally and literally fill their stomachs, the extrasystoles disappeared in two of the cases (Cases III and IV).

The arrhythmia seems to have no prognostic significance upon the stomach condition, nor does it in itself require medication except when accompanied by signs of cardiac decompensation.

CASE V. G. H., aged sixty-eight years, suffered from several attacks of abdominal pains accompanied by a slight rise of temperature, nausea, and vomiting, for four weeks before admission to the Lebanon Hospital. He had several attacks later. During the attack his abdomen became rigid, and intestinal rigidity was sometimes present. His condition was suggestive of peritonitis from appendicitis or intestinal obstruction. Myocarditis and marked arteriosclerosis were present; there was no decompensation. His blood pressure was 160 Hg. mm. With the onset and during the mild attacks of peritonitis, very frequent extrasystoles were present; after the attacks the pulse became regular. When the peritoneal attacks were severe the type of arrhythmia changed from extrasystoles to complete irregularity of the pulse (auricular fibrillation). Twice with amelioration of the peritoneal condition, the fibrillation changed to extrasystoles. Finally auricular fibrillation appeared and remained until death. Except for dyspnea, which might have been due to abdominal distention, no decompensation accompanied the arrhythmia till shortly before death.

It is impossible to state what proportionate rôles, if any, toxemia and peritoneal reflexes played in the production of the extrasystoles and auricular fibrillation. The advance and recession of the severity of the abdominal condition could be foretold by a study of the arrhythmia. Therapy directed to the heart alone would have missed the importance of the etiological abdominal factor; such therapy could not have cured the arrhythmia without the removal of the underlying cause.

CASE VI. E. G., aged twenty-six years, had articular rheumatism when fourteen years old. Cardiac examination showed an aortic stenosis and hypertrophied heart; the apex beat was situated one inch below and slightly outside the nipple line. The systolic blood pressure was 140; the patient was athletic and of excellent musculature. There was no dyspnea or decompensation. Of late he had been very active in business. During the last three months

he had occasionally felt "extra thumps" at the heart. He was sometimes awakened at night by "attacks of palpitation" usually lasting several minutes and ending with a sharp "thump" and pause. Upon examination his heart was rhythmic except after forced exercise (rapid walking) when an occasional extrasystole was heard.

Overstrain of an hypertrophied heart was apparently the cause of the extrasystoles. From the patient's description, attacks of palpitation at night ending with an extrasystole ("extra thump and pause") it seemed probable that short attacks of paroxysmal tachycardia were present. Such a heart needed comparative rest, otherwise the occasional arrhythmia might have led to more constant arrhythmias, tachycardias, and possibly decompensation. Less active application to business was advised and bromides were prescribed. Within a few weeks, the extrasystoles and palpitation disappeared.

This patient typifies cardiac overstrain as the etiological factor. Here the heart was hypertrophied as the result of a valvular lesion; but hypertrophy and overstrain from other causes, e. g., from athletics, may act similarly. The cause gives the indication for treatment.

CASE VII. G. K., aged fifty-two years, had two attacks of decompensation, dyspnea, edema of the legs, ascites, and an enlarged liver. He gave an indefinite rheumatic and alcoholic history. There was evidence of an aortic stenosis; the cardiac area was enlarged, the apex impulse weak and diffuse. Occasional extrasystoles were present. With rest in bed and under digitalis the decompensation disappeared. After several weeks, he was readmitted to the hospital with the same symptoms and arrhythmia and died one month later of cardiac failure.

CASE VIII. A. M., aged forty-six years, as the result of articular rheumatism some years ago, suffered from aortic stenosis and cardiac hypertrophy. The apex beat was diffuse, and was situated in the sixth interspace one inch to the left of the nipple line. While in the Lebanon Hospital, the patient suffered from decompensation, edema, and dyspnea. He improved, but after four months reentered the hospital with more marked cardiac failure. A systolic murmur was now heard at the apex. For a few days the heart action was regular, then occasional extrasystoles were present, finally auricular fibrillation appeared and remained until death.

Though the valvular lesion (aortic stenosis) was the same in Cases VI, VII, VIII, the presence of myocarditis, dilatation, and severe decompensation made the extrasystoles of serious import in the two latter cases. Rest and medication only temporarily improved the cardiac condition.

CASE IX. F. K., aged twenty-three years, had been well until her present illness. The latter began with a chill, general muscular pains, and fever four weeks prior to her admission to the Lebanon Hospital. On auscultation loud murmurs corresponding to mitral and probable pulmonary insufficiency were heard. During her three months' stay in the hospital, she had several attacks of chills and fever, each attack lasting from one to two weeks; at these times the pulmonary and mitral murmurs became more marked and extrasystoles were frequently present. In two of these febrile attacks the type of arrhythmia changed to complete irregularity of the pulse (auricular fibrillation). When fever was present, there was slight dyspnea, but no other sign of decompensation. Throughout her illness, the cardiac area was normal to percussion; urine and blood pressure were also normal. Two blood cultures remained sterile after seven days. When the temperature had been normal for four weeks the patient left the hospital with permanent involvement of the mitral and pulmonary valves, with evidence of adhesive pericarditis and with a pulse which had remained regular for two weeks.

In this patient extrasystoles accompanied each fresh outbreak of endocarditis and were somewhat indicative of its severity. When the infection was mild—slight fever, short duration—the extrasystoles were infrequent; when severe they became

²Vaquez: *Les Arrhythmies*, 220, 222, 1911; Le Conte: *L'Extrasystole*, 88, 89, 1911.

³Lewis: *Clinical Disorders of the Heart Beat*, 44, 1912.

frequent and twice changed to complete irregularity of the pulse. The treatment (injection of polyvalent vaccines, salicylates, etc.), though without apparent effect, was directed against the endocarditis, not the arrhythmia.

CASE X. P. L., aged forty years, was an inveterate tobacco smoker since youth. For several years he had not been able to work regularly because of sharp stabbing pains in the left chest, particularly after exertion. Examination showed that the area of cardiac dullness was slightly enlarged downward and to the left; there was a soft systolic murmur at the apex. The blood pressure was normal; there was no decompensation. There were frequent extrasystoles which partly disappeared after the subcutaneous injection of one fiftieth grain of atropine sulphate. Apparently mild myocarditis was present. Tobacco was prohibited and small doses of atropine were prescribed. The anginal pains soon stopped and the patient was able to work regularly. It was only after some months that the extrasystoles became noticeably fewer.

No attempt has been made to include all causes of extrasystoles, for example, such as result from shock, fright, nervousness, anemia, agonal cases, the use of digitalis, etc. The extrasystole in itself is only a form of arrhythmia and represents but one phase of a cardiac examination. It may be indicative of severe myocarditis or of reflex disturbance in some organ other than the heart. In the latter instance it appears most apt to disturb the normal rhythm when arteriosclerosis, high blood pressure, or some degree of myocardial involvement is present. In fact some writers (Mueller⁴) believe that extrasystoles in themselves offer direct evidence of myocardial involvement. In some of my cases, however, though frequent or isolated, extrasystoles were present, there was absolutely no evidence of myocarditis or of arterial disease. The relative value of this arrhythmia must be carefully weighed and studied in the cardiac examination. This applies especially to cases of decompensation from any cause. The knowledge of the blood pressure⁵ is also important. The examination is not complete until the gastrointestinal canal in particular has been searched as a possible reflex cause for the extrasystoles and inquiry has been made regarding those drugs (especially the digitalis group) and addictions (tea, coffee, and tobacco) which sometimes produce this arrhythmia. If the gastrointestinal canal and heart can be excluded, painful abdominal conditions—e. g., cholecystitis, peritonitis, etc.—should also be considered as etiological factors.⁶ By themselves, extrasystoles may be of no clinical significance or may be portents of a lasting arrhythmia⁷ and severe decompensation. They may require no treatment, sedative treatment, or treatment directed against the underlying cause. Though digitalis may produce extrasystoles, it is not contraindicated when the cardiac condition otherwise warrants its use and is the cause of the arrhythmia; it then acts favorably by improving the cardiac condition.

CONCLUSIONS.

1. The recognition of extrasystoles by ordinary clinical methods of examination is usually easy.
2. Painful sensations in the chest accompanying extrasystoles are infrequent.

3. Depending upon the underlying cause, patients with this type of arrhythmia may or may not require treatment.

4. When the cardiac condition calls for digitalis or allied drugs, extrasystoles offer no contraindication to their use.

5. When viewed as part of the clinical syndrome, extrasystoles may sometimes be of prognostic importance.

6. Extrasystoles may be forerunners of more severe types of arrhythmia, particularly of tachycardia and auricular fibrillation.

1275 MADISON AVENUE.

THE SPECIFIC TREATMENT OF PELLAGRA.*

The Relative Value of Sodium Arsanilate and Salvarsan.

By E. H. MARTIN, M. D.,
Hot Springs, Ark.

That pellagra is of comparatively recent occurrence in our practice must be the excuse for the small number of cases on which my deductions are based. Written histories and records have been kept, however, of each case and these, eighty-three in number, have been carefully reread, analyzed, and classified, and all cases in which the diagnosis was doubtful or which were under treatment only a short time have been excluded in the final analysis. This has excluded a number of apparent cures, and brings the final series down to cases in which the diagnosis was absolutely positive and which, except the fatal cases, each had sufficient treatment to exclude chance or accidental recoveries.

Of the eighty-three cases, four came first under observation in 1909, nine in 1910, thirty-five in 1911, and thirty-five in 1912. These figures do not show the relative frequency of the disease in Arkansas during those years, as the patients came from many States, and the lack of increase in 1912 over 1911 merely argues that fewer pellagra patients are leaving home for treatment.

A very careful analysis of these records has caused me to exclude forty-five on account of the data being insufficient for certainty. These forty-five cases were treated for a short time with sodium arsanilate in some instances, and some others had single doses of salvarsan, and almost all of them ended in recovery, but the cause and effect are not absolutely certain, and they are therefore not offered as evidence. Some of the forty-five are also still under treatment. Of the thirty-eight others, eleven come from the sodium arsanilate series and twenty-seven from those treated with salvarsan.

The eleven cases sufficiently treated with sodium arsanilate give nine recoveries and two deaths. Of the nine patients recovered there were two who received single doses of salvarsan, but the arsanilate treatment preponderated. Each patient received many doses of the arsanilate, and treatment

⁴Mueller: *Archives of Internal Medicine*, January, 1909.

⁵Herring: *Pfäuger's Archiv*, lxxii, 1, 1900; Huchard: *Congrès international de médecine*, 589, Paris, 1900.

⁶Wenckebach: *Archives des maladies du cœur*, 81, 1903.

⁷Lewis: *Clinical Disorders of the Heart Beat*, 53, 1911.

*Read before the National Association for the Study of Pellagra, Columbia, S. C., October 4, 1912.

was kept up in most instances over two summers. One of the recovered cases dates from 1909, four from 1910, and four from 1911.

Of the two fatal cases, one terminated fatally from chronic nephritis, the other from cerebral complications, probably made worse by the slight reaction sometimes following sodium arsenilate in very severe cases. This idea will be discussed later.

Of the twenty-seven cases taken from the salvarsan series, twenty show apparent cures, three are doubtful, but greatly improved, and four ended fatally after treatment was begun.

Of the twenty presumed cures, seven were treated in 1911 and remain cured. Four of these came back and received midwinter doses of salvarsan which may or may not have been necessary. There were thirteen patients seemingly cured by salvarsan in 1912 of whom nine were discharged previous to August 1st and are still well. These twenty cases and the three doubtful ones received the following number of doses: Four received five doses each, twelve received six doses each, two received seven doses each, three received eight doses each, one received ten doses, and one received twelve doses.

These doses were usually given at intervals of from seven to ten days, and the first dose was usually 0.2 gramme, the second dose 0.4 gramme, and the subsequent doses whatever the patient's weight called for—basing the full dose on 0.1 gramme for every twenty pounds after allowing for clothing.

In very weak and nervous cases these doses are reduced. Each of these patients received the number of doses mentioned in an unbroken series, except the two getting ten and twelve doses. The former of these was given four doses at one series, four at a second series, and two at a third. The latter received three doses at first, three doses several months later, and six doses in her third series. The reason in each case was the same—not enough treatment at first because we were in unknown territory and did not know how many doses could safely be given at short intervals. Both patients are apparently cured. Of the three doubtful cases, two were given six doses each and one received eight doses. The patients apparently recovered and lost pellagrous symptoms, but each had to leave Hot Springs before receiving a dose without a subsequent reaction. These three patients may be really cured, but as this reaction seems to be proof of the presence of the organism causing pellagra, the patients cannot be regarded as cured until a dose of salvarsan can be given without a reaction following.

The author of this paper has met with strong opposition in advancing the theory that the reaction following the administration of salvarsan in cases of syphilis and pellagra is due to toxins released from killed organisms causing those diseases. However, opposition cannot alter facts—the reaction, consisting of fever, emesis, and bowel movements of a watery and gaseous character, does occur. Either of these three factors of the reaction or any two of them may be absent or all may be present, in either case the reaction is positive. Granting that the distilled water is fresh and the

technic of administration all that it should be, this reaction does *not* occur in any patient *not* having lues or pellagra. That it is sometimes absent in certain cases of syphilis is at times explained by the organisms not being in reach of the circulating blood and in other cases its absence cannot be explained in the light of our present knowledge, though, certainly, there is a reason which we will some day understand. However, it is rarely absent, except in cases where its absence can be expected—after first doses in tabes or spinal syphilis for instance. So certain are these facts in my opinion, an opinion based on carefully watching and recording the results of 1,100 intravenous doses of salvarsan, that my guide for treatment in both syphilis and pellagra is the reaction. Each patient is given appropriate intravenous doses, usually seven days apart, until no reaction follows—meaning no rise of temperature above normal, no emesis not otherwise explainable, and no characteristic bowel movements. A single watery, gaseous bowel movement constitutes evidence of reaction and calls for another dose as imperatively as a rise of temperature. This absence of reaction which should indicate a total destruction of the germs of the disease is attained in seventy per cent. of all cases of syphilis by two doses, if given within ten days, twenty-eight per cent. require three doses at that close interval, and two per cent., mostly cases of cerebral or spinal syphilis, will require four or five doses. Pellagrins, however, require from five to eight doses to cause the reaction to disappear, as a rule, though apparent cures often occur after one dose.

Also, in cases of cerebral and spinal syphilis, there is often seen a delayed reaction, never seen in other cases of syphilis. So, knowing from the clinical symptoms of pellagra, the increased reflexes, the nervous and mental symptoms, the symmetrical character of the skin lesions, that the spinal cord and the brain are the chief sites of trouble, we should naturally expect some such prolongation of the reaction following salvarsan as is at times seen in lues of the nervous system.

Such is invariably the case, the reaction of salvarsan in cases of pellagra is not a frank paroxysm as it is in cases of secondary syphilis, but is usually a matter of three days. The reason for this is not difficult to imagine, though it may not yet be possible to prove. If the organisms, doubtless spirilla or spirochetes, are situated in the nervous system the circulating blood cannot bear its salvarsan to them with sufficient freedom to cause their destruction *in situ*, but it is probable that sufficient approach is made by the salvarsan bearing blood to influence the breaking up of colonies and to cause the organisms to pass gradually into the blood current where they were killed from day to day until so much salvarsan has been eliminated from the patient that it is no longer effective.

The fact that colonies of organisms are thus broken up was sufficiently proved to several patients by the appearance of acute symptoms. For instance, in one case the second dose of salvarsan, while improving existing symptoms, caused a renewal of stomatitis. In another case, the skin lesions present rapidly disappeared, but an entirely

new set of symmetrical skin lesions followed the administration of the drug. These were temporary and yielded to later treatment. In a great many cases the increasing of the diarrhea shortly after treatment is begun is very noticeable, both in arsanilate cases and those treated with salvarsan. Analogous to this, I have seen similar results in tertiary syphilis in at least a score of cases. Patients with strictly tertiary lesions and with presumably not a single spirochete in the circulating blood, would be changed to secondary cases after the administration of a dose of salvarsan, as shown by the prompt appearance of the secondary eruption which, however, would disappear after, or even before the next dose.

The severity of this reaction depends upon the number of organisms killed, and therefore upon the severity of the particular case and also upon the size of the initial dose. It is reasonable to suppose that there are usually germs of pellagra in other parts of the patient's body, in the blood for instance, even if the central colonies are in the nervous system. Therefore, a very desperate reaction may be expected in some cases, though not all, if the first dose is a full one.

It is much more desirable to give small and increasing doses and not to give a full dose until the third, as then the free germs in the system may be presumed to have been already destroyed. Even with this precaution there is danger in patients with marked cerebral symptoms, which brings us back to our four deaths. Three of these were patients with cerebral cases, practically insane; the fourth gave no mental symptoms, but was a chronic alcoholic as were two of the other three. These patients were given extremely small doses of salvarsan, but there seemed to be some connection in each of the three cerebral cases between the reaction and a subsequent cerebritis or meningitis. One of these, a woman, was given only one dose of 0.15 gramme, and while she improved wonderfully for three days she could not sleep—two days later she died with meningitis. The other two cerebral patients had similar histories, except that they were also alcoholic habitués, and the withdrawal of whiskey, voluntary and persisted in, may have had some influence in bringing on cerebritis and coma. The fourth fatal case was that of a very constant drinker, and his cerebritis also followed his refusal to drink even moderately. His reaction was ten days past and he had been out on the street several days before he began to have nervous symptoms, and what appeared to be an acute attack of pellagra was precipitated. This came with fever, eruption, diarrhea, sore mouth, and mental hebetude which deepened from day to day until coma supervened on the fifteenth day and death on the sixteenth. Eminent consultants considered his death to be due to alcoholism, but it seemed to me to be a pellagrous explosion. The other three patients were close to the end, and it may be that no possible delicacy of approach could have saved them, but it is equally possible that they might have lived a few days longer but for the reaction following the salvarsan, which is also true of the patient previously mentioned who died during the treatment with sodium arsanilate.

Comparing final results from sodium arsanilate and salvarsan, there seems to be but small choice between them. Each seems entirely to cure the cases completely treated. So we must weigh the two plans of treatment for other advantages. The arsanilate must be given hypodermically from three to five days apart for from eighteen months to two years, allowing a three weeks' interval between each course of 100 grains. This is laborious, but it is at least possible anywhere, and intravenous medication is not. For this reason alone the arsanilate treatment will probably be the most used in rural districts where distilled water cannot be procured fresh from the still, and where the intravenous needle is not required often enough for the practitioner to acquire sufficient skill to administer repeated doses in the same spot without injuring the vein, often the only available vein and needed for future doses. On the other hand, the early results from the arsanilate are extremely slow compared with the almost miraculous disappearance of symptoms in the majority of cases after using salvarsan—and many cases are so slow to begin to improve on sodium arsanilate that the patients and the physician both become discouraged.

The average patient will take six doses of salvarsan in five weeks and be cured thereby, and that is evidently preferable and should be the course pursued whenever the patient can be so treated or can reach such treatment. Some patients can afford to remain away from home only about two weeks, long enough to get three doses. When that is the case it is well to give them that much intravenous treatment and then have the arsanilate kept up after they get home. With two such specifics which will absolutely cure practically all cases not rapidly approaching the grave, it is time for the physicians of America to cease thinking of pellagra as an incurable disease.

That we cannot save every patient should not discourage or lend doubt. We do not save every patient who has malarial poisoning, yet no one doubts the specific value of quinine. We readily understand and appreciate the fact that one may be provided with a perfect weapon or instrument and not know how to use it. Improperly used, every such agent—from a fourteen inch gun to a capsule of quinine—is a failure. The fact is that repeated failures really to cure pellagra, even when the way has been pointed out, is no more surprising than the fact that many a case of malarial fever follows the bungling use of a proved specific.

On the other hand, thousands of cases of pellagra have been left to run their courses downward merely because the physicians in charge refused to believe the facts stated in this paper, facts which were offered to the profession with equal clearness if not with as much proof one year ago. Thousands of cases of pellagra are being permitted to go on without any attempt whatever to use any specific treatment. Hundreds of these unfortunate patients are in institutions offering facilities for any kind of treatment and paying good salaries to educated and trained men to give them the best.

Are they doing their duty? Are the physicians of the south who are waiting for more proof be-

fore trying specific treatment, while a large percentage of their patients are dying, entirely blameless?

DUGAN STUART BUILDING.

CARBONATED BATHS.*

Indications and Contraindications for Their Use in Chronic Diseases of the Heart and Vessels.

By I. M. GROEDEL, M. D.,
Bad-Nauheim, Germany,
Professor, Geh. Medicinalrat.

The treatment with carbonated baths of chronic disturbances of the circulation (diseases of the heart), which originated in Nauheim, is now known, acknowledged, and used everywhere. But there still exists a good deal of uncertainty as to what cases the baths are best adapted. I shall, therefore, give a short résumé of my experience.

Beneke, who first treated with carbonated baths in Nauheim patients with heart trouble, thought that it was especially for such cases as were complicated with articular rheumatism or with cardiac valvular defect originating therefrom, that the baths would be beneficial through establishing satisfactory compensation and the removal of circulatory disturbances. Later, it was also found that different kinds of purely muscular affections of the heart were good subjects for the Nauheim treatment. But for a long time there existed a prejudice against the treatment of disturbances of the circulation in arteriosclerosis. Physicians were particularly afraid to allow patients with highly increased blood pressure to take such baths, believing that carbonic acid increases blood pressure. But I have since demonstrated that by a special preparation of the bath an increase of the blood pressure can be avoided; these patients, therefore, are also treated therewith, and usually with good results; in fact they constitute about fifty per cent. of all the patients in Nauheim.

Finally, it has been shown that no group of disturbances of the circulation or heart is unsuitable for bath treatment. Thus the conclusion was reached that the carbonated baths were advantageous for all cases in which the heart had become insufficient, thus producing disturbances in the circulation, as well as for every kind of heart trouble without insufficiency of circulation. It was found to be of no import whether the heart trouble or circulatory disturbance was the result of a valvular defect, of a pure affection of the heart, of changes in the vessels, of nervous origin, disturbed metabolism, or diseased kidneys, etc. Undoubtedly the mode of treatment, especially the temperature and synthesis of the bath, must be varied according to the condition.

From what I have stated it might be taken for granted that there exist no contraindications. But that is not the fact; in each group there exist exceptions. If we take up first the general indica-

tion of insufficiency of circulation or of the heart musculature, there are numerous patients who should not undergo bath treatment. These are the cases of advanced insufficiency, in which the symptoms appear not only when the heart is forced to perform greater labor, but when the organ is at rest, through deficiency of reserve power.

Patients who are not influenced by regular treatment, such as absolute quiet, diet, and drugs, should not be sent from home to a spa, although in Nauheim we sometimes experience success with a combination of baths and drugs and other methods of treatment in patients with whom treatment at home was a failure. This success is then attributed to the special treatment and constant surveillance of the whole régime, perhaps in a sanatorium. Such exceptional patients should not influence the physician seeking a consultation.

I shall now take up the different diseases of the heart and vessels, to point out the cases in which a treatment with carbonated baths should not be applied:

1. *Valvular defects.* The baths will fail in their purpose if permanent damage of high degree has resulted in the tissues of the liver or kidney with pronounced hydropic manifestations, through chronic valvular defect or decompensation. Lighter hydropic manifestations, such as we often see in disturbance of compensation, are not contraindications; these will often disappear during bath treatment, like acute stasis in the liver or kidney, or catarrhal stasis of the lungs. Emboli following decompensation in a valvular defect, if they have existed for a protracted period, exclude bath treatment, which should be permitted only after an interval of half a year after the attack. If emboli have repeatedly occurred, the bath treatment should be absolutely excluded. The same is the rule with emboli resulting from other heart affections, and it does not matter whether the emboli occur in the brain, the lungs, or any other part of the body.

2. *Heart muscle affections.* Carbonated baths should not be ordered in progressive, fatty degeneration, circulatory disturbances depending upon this degeneration, orthopnea, etc., nor if there is a suspicion of new formation in the heart muscles (for example, gumma), of heart muscle infarct, or of aneurysm.

3. *Pericarditis.* Disturbances remaining after a cured pericarditis, such as adhesions or pericardiac friction sounds, permit of baths, but hydropic or inflamed exudates are absolute contraindications.

4. *Arteriosclerosis.* In disturbances of circulation produced by arteriosclerosis, not taking into consideration the general contraindications already mentioned, we must warn against carbonated baths when the blood pressure has excessively increased. A high blood pressure is *per se* no contraindication, as mentioned above; on the contrary, we see in such patients improvement within certain limits. If the blood pressure is permanently higher than 220 mm. Hg. (measured with the Recklinghausen-Riva-Rocci instrument, or similar apparatus with an arm band), the baths should not be taken.¹

*We have asked Professor Groedel to give us his experience with Nauheim treatment, as he was present during the development of the treatment and as he possesses an extraordinarily rich experience. We think that his article, which we have translated from the original German, will be of interest to our readers.—EDITOR.

¹Such increased blood pressure leads always to suspicion of an attack of sclerosis of the kidneys, even if uranalysis gives a negative result. Affections of the kidneys with circulatory disturbances I shall mention later.

If the baths are given according to my instructions they will not produce increase of blood pressure, but diminish it. After the bath the original degree of pressure reappears. In very high blood pressure (over 220 mm. Hg.), the vacillation is sometimes very great and produces severe vertigo. This should be avoided. Undoubtedly frequent vertigo in arteriosclerosis, even if the blood pressure is only slightly increased, is a warning to be very careful with carbonated baths.

In connection with arteriosclerosis, I wish to mention aneurysm of the aorta and angina pectoris. Diffuse enlargement of the ascending aorta is no contraindication as long as there does not appear important circulatory insufficiency; the same may be said of small aneurysms; nor have I seen any unpleasant effects from carefully prescribed baths in larger aneurysms. But if we observe steady growth in an aneurysm, I think it advisable to keep the patient at home and not to send him to a spa.

In angina pectoris it is often very difficult to distinguish the organic form, that is, angina resulting from sclerosis of the coronary arteries or from sclerotic changes in the origin of the aorta, from nervous reflex, or vasomotor angina pectoris. All the different kinds bear carbonated baths equally well, if the baths are administered according to the method proposed by me, and receive benefit from them if properly graded. I except only those cases in which a so called anginous condition exists, that is, such patients as are never free from pain. Patients also whose attacks, although they receive the usual drugs, last for hours, especially if symptoms of acute edema of the lungs appear, should not receive the baths.

Apoplexy in patients with arteriosclerosis forms also a contraindication if a year has not elapsed after the attack without recurrence.

5. *Disturbances of circulation with chronic nephritis.* If the nephritis is parenchymatous the carbonated baths are injurious, but in interstitial nephritis the baths may be given and are beneficial, although this statement is made with great circumspection. The baths are indicated only in the beginning of the disease, especially in cases with a slow, often stationary course. It is better not to advise baths in the final stage of the disease, with exceptionally high blood pressure (over 220 mm. Hg.) with the appearance of uremic symptoms, even if this should consist only in permanent or repeatedly occurring headaches or vertigo, especially with an inclination to severe attacks of acute pulmonary edema.

6. *In insufficiency of circulation from cirrhosis of the liver,* baths are indicated only in the beginning to improve the circulation, even if ascites in light form should appear. If this ascites is severe, or if symptoms of generally bodily dissolution appear, baths should not be advised.

7. *Nervous heart disturbances.* In patients with vasomotor neuroses the carbonated baths are generally very beneficial, also in nervous exhaustion. But in neurasthenics prone to excitation, together with heart trouble, the carbonated baths have no specific success; as in such patients there sometimes

occurs increased excitability, I mostly discourage the baths.

A contraindication for the treatment of a disturbance in the circulation, respiratory disease of the heart, by carbonated baths, may also be found in a complication by some other disease. I have already mentioned nephritis and diseases of the liver. Diseases of the lungs form no contraindication, except tuberculosis. While there may be observed a beneficial influence even in chronic bronchitis and emphysema of the lungs, in phthisis carbonated baths should never be administered, even in so called cured conditions, as they may lead to recurrence. Carbonated baths should, furthermore, not be given in any other diseases which have a debilitating influence upon the body. Diabetes combined with arteriosclerosis necessitate a special light treatment, that a further loss of body strength may not occur.

In pregnancy, there existed formerly an old preconception that carbonated baths would be detrimental only during the first three months, as abortion might be produced. I advise omitting such baths for pregnant women with disturbances of circulation.

If in chronic diseases of the heart there appear acute inflammatory conditions, a bath treatment should not be given, and, if begun, it should be stopped. The same is also the case if another acute disease occurs during treatment, or if in an existing kidney trouble a fresh inflammation of the kidneys, hemorrhages, etc., appear, or if in subacute articular rheumatism acute exacerbations are observed together with fever.

TUBERCULOSIS.*

A Study of Treatment in Ward Q (The Hopeless Ward) of the Metropolitan Hospital, Department of Public Charity.

By M. W. McDUFFIE, M. D.,

New York.

This preliminary report represents work in Ward Q of the Metropolitan Hospital, Department of Public Charity, during the past year; observations in over 500 cases, with the following treatments: Mercury succinimide, mercury bichloride, mercury biniodide, arsenic troxide, salvarsan, Fowler's solution of arsenic by mouth, mineralization treatment, oils. Sherman's vaccines (letter P), combined bacterial vaccines (Van Cott), Schafer's vaccine or filtrate, Schafer's tuberculosis vaccine or filtrate, Dr. Cochen's vaccine or filtrate, Dr. Duncan's autotherapy filtrate, tuberculin by mouth, tuberculin injections, antistreptococcus serum, quinine, baptisia, formaldehyde solution; salicylic acid mixture, salicin, sodium salicylate, guaiacol, and vanadium; a total of twenty-six different forms of treatment.

Our efforts have been directed to the two main essentials in this disease, namely:

1. To get rid of the germs; and, 2, to make the soil unfavorable for their growth.

*Read before the New York County Homeopathic Society, October, 1912.

The following shows the statistics of the ward for the six months before taking up this research, for the first six months in this work, and for the past five months.

Ward Q.

Before treatment, May 1 to November 1, 1911.	
47 transferred	18 per cent.
43 discharged	16 per cent.
10 remained	4 per cent.
165 died	62 per cent.
265 Total	100 per cent.
First 6 months treatment, November 1, 1911, to May 1, 1912.	
36 transferred	16 per cent.
37 discharged	16 per cent.
22 remained	9 per cent.
140 died	59 per cent.
235 Total	100 per cent.
Past 5 months, May 1, 1912, to October 1, 1912.	
20 transferred	10 per cent.
52 discharged	26 per cent.
65 remained	32.5 per cent.
63 died	31.5 per cent.
200 Total	100 per cent.

The first six months showed, practically speaking, a ten per cent. improvement in lessened death rate and prolongation of life. The total improvement, as you can see from the last five months' report compared to the six months before treatment, is wonderful for a ward of such hopeless cases and in so short a time, and is sufficient excuse for our continuing this work as we have done and for our presenting this paper. The different treatments have been tried in from ten to over 100 cases at a time. Some patients have had courses in the several different treatments. We commenced our efforts from the standpoint of eliminating the tubercle bacillus and observing the results upon the course of the disease. Our next efforts have been directed toward the other organisms which accompany the tubercle bacillus—in other words the secondary septicemia as shown by the temperature, pulse, and respiration. The first guide, namely, the elimination of the tubercle bacillus has been discarded except as an adjunct, as we found that this could be apparently accomplished, but in the greater number of cases without improving the temperature, pulse, and respiration, or checking the progress of the disease. The second guide, namely, temperature, pulse, respiration, seems quite trustworthy as it has been with tedious difficulty that we could find a treatment which would lower the temperature and improve the pulse and respiration, but to our satisfaction we found when this was brought about that there was a corresponding improvement in all the other symptoms, in other words, the treatment of toxemic or surgical tuberculosis cases (with an apology for the use of the word surgical) from the standpoint of the tubercle bacillus gave negative results, but in treating them from the surgical or septicemic standpoint has give us positive and gratifying results. As was mentioned above, the total number of cases under observation has been over 500.

Some of the treatments have been given *per os*, but mostly by injection. It is interesting from a psychological point of view that on commencing

this work we were told it would be impossible to give more than ten injections in succession, as the patients would absolutely refuse or even leave the hospital, but we have given over 5,000 injections and with comparatively few refusals. The injections have been given either subcutaneously, intramuscularly, or intravenously. Only five abscesses developed or one tenth of one per cent. No cleansing of the skin was used in the majority of the cases except for the intravenous injections, as it was found that the preliminary rubbing with alcohol, carbolic acid solution, or lysol was conducive to irritation. Iodine if anything would be best for this. No treatment has been tried without a careful search of present day literature on the subject or a knowledge of the effects on man or animals.

Treatment No. 1: *Mercury succinimide*. Ehrlich, of the diazo test and 606 fame, has brought great prominence to the forms of treatment called chemotherapy. Dr. L. B. Wright, of the United States Navy, has been a persistent advocate of mercury in tuberculosis since 1908, and his results and those of others have been interesting. Doctor Wright has reported in a recent article changing from the small doses of this drug to the largest dose possible with better results. His method of giving this treatment was:

R. Solution of mercury succinimide, ...grs. xxiv;
Distilled water, ...3i.
M. Sig.: Deep hypodermic injections of 5 drops or $\frac{1}{8}$ grain.

At first he used one fifth grain, but in his latest article was using one and two fifths grain at a dose.

Hertzburg avers that mercury is apparently a specific for superficial lesions of tuberculosis. The action asserted for mercury in this disease was that it increased the resisting powers of the patients and that it acts as an antitoxine to the tubercle bacillus which it neutralizes or destroys, thus giving the patient a chance to throw off the toxins produced by the tuberculous process; that it diminishes night sweats, cough, and tubercle bacilli, and that it increases appetite and weight and slows the pulse; no effect on high temperature. Improvement in general is the usual result except in the septic cases. In Ward Q we found a one and two fifths grain dose entirely too strong, producing mercury symptoms in seven out of the first fifteen cases. We then gave it in one grain doses, watching carefully before repeating our doses for salivation, sore teeth, or diarrhea. Patients object strongly to this treatment, having generally quite a painful spot at the seat of injection for twelve hours to four days afterward. No abscesses occur, but if given subcutaneously instead of intramuscularly there is often a necrosis of the tissues from the size of a quarter to half a dollar. This is a long time in disappearing. Even when given intramuscularly there will occasionally remain for weeks a lump which annoys the patients.

Treatment No. 2: *Mercury bichloride*. Not liking the intramuscular method after a trial in over 100 cases, we began investigating the intravenous and found a method of giving this treatment based upon the experience of 10,000 such injections by Doctor Bernart, of Chicago. He found that mercuric chloride was best for this work in one or two per

cent. solutions, and doses as high as seven tenths of a grain could be used. The solution for this was:

R Mercury chloride corrosive, ... 1.0;
Sodium chloride, ... 3.00;
Distilled water, ... 100.0.

M.

Quoting from Doctor Bernart's article, it has a rapid and decided action. The intravenous method is usually very simple. The only difficulty is in the fat or markedly emaciated people. Complications from this method are practically nil. The safeguards are to use filtered solutions, clean syringe and needle. If in doubt as to whether in a vein, draw blood in syringe and mix with the mercury, then reinject. This treatment gives improvement in anemia; there is no renal irritation, but at times diarrhea. If diarrhea and cramps should be excessive then give powdered extract of opium, one grain three times daily. Morphine, hypodermically, is not so effective. Saline cathartics are contraindicated during the mercury course.

In our work the mercury treatment lowered at first the hemoglobin, red cells, and blood pressure, but only to a slight degree. It eliminated the tubercle bacillus from the sputum in fifty per cent. of the cases, and in twenty-five per cent. more reduced them from many to few. Some patients gained in weight and showed a general marked improvement. There was no effect on high temperature or in the septic cases, therefore but little value in the septicemic or surgical tuberculosis cases, but it may be of value in the first or early second stages owing to a decided action on the tubercle bacillus. This action is as efficacious upon the nonsyphilitic as upon the syphilitic.

Treatments No. 3 and 4: *Mercury biniodide*. We also observed mercury chloride by mouth as well as mercury biniodide and apparently our results were as good as by injection, and we believe for the mercury treatment that as much can be accomplished by giving mercury biniodide, one thirtieth grain three times a day, by mouth as by the intramuscular method. It is less painful, slower in effect, but just as beneficial.

Mercury treatment is of comparatively little value in this class of cases.

Treatment No. 5: *Arsenic trioxide*. From the marked anemia in our cases preceding death we were led to think of arsenic and its effect upon the blood in this class of cases for our next treatment. Bramwell, in the *British Medical Journal* for March 11, 1911, reports the use of arsenic in pernicious anemia since 1875. He obtained marked improvement and temporary cure in most cases from its use first as Fowler's solution, now as "606," with continued improvement in the blood and general condition. Babcock, in the *Interstate Medical Journal*, for January, 1911, says "606" has not been given an extensive trial in the syphilitic tuberculous. As a remarkable improvement follows the injection of "606," it ought to affect favorably all cases in which the patient is not too greatly reduced or the lung destruction is not too great. Nephritis, arteriosclerosis, and a very low blood pressure contraindicate. Mendel, of Germany, with a combination of arsenic and tuberculin intravenously, obtained good results with little or no fever in the first or second stage

of pulmonary affections. Our arsenic treatment in Ward Q was the intravenous use of:

R Arsenic trioxide, ... 1.0;
Normal salt solution, ... 2.25;
Distilled water, ... 100.0.

M. Sig.: One to two c. c.

We found it had but little effect in the majority of high temperature cases, but improved the general condition.

Treatment No. 6: *Salvarsan*. "606" we used only on the syphilitic, and the contraindications such as high price, nephritis, arteriosclerosis, and the low blood pressure in most of our cases prevented our using it in many of the others, therefore we have made no deductions therefrom.

Treatment No. 7: *Fowler's solution*. Fowler's solution of arsenic by mouth gave us our best results for the arsenic treatment. We prescribed it in one drop doses three times daily. Arsenic is undoubtedly of value, but not a very satisfactory treatment owing to the rapidity of its toxic symptoms in these cases, before a checking of the tuberculous process.

Treatment No. 8: *Mineralization*. Since 1875 articles have appeared on the increased secretion of lime salts in tuberculosis, notably by Ott and Crofton. Twenty times the normal amount is excreted in this disease. Calcium has an affinity for the albuminous products accompanying the tubercle bacillus. Experiments show that this product causes fever probably due to the toxins and that this pyretogenic power is lost by combination with calcium. Some call this treatment the recalcifying method.

Calcium was first employed in the nineteenth century for scrofula and phthisis. It has hemostatic properties. It acts as a moderator of the nervous system. It also acts as a cardiac tonic. It is contraindicated in old people or in those with high blood pressure, having a strong affinity for the bloodvessels.

When calcium is given it enters into the general metabolism or allows the calcium already present in the body to be utilized without loss. It is said to be extremely useful in thyroid insufficiency, as proved by experiments on dogs. This is interesting as some say that the frequency of tuberculosis in childhood is due to thyroid insufficiency. The method of giving calcium was as follows:

R Sodium chloride, ... 34.4 grains;
Sodium carbonate, ... 10.13;
Calcium phosphate, ... 1.1;
Sodium phosphate, ... 1.23;
Magnesium phosphate, ... 0.9;
Potassium carbonate, ... 2.6;
Boiled water, ... 120 c. c.

Note the sodium chloride. Sodium carbonate and potassium carbonate are dissolved in boiling water, the solution is filtered, and the other ingredients are added. A tablespoonful of this was given in a glass of water every four hours.

This treatment in Ward Q increased weight and blood pressure principally. It had no effect on high temperature cases and caused gastric annoyance.

We consider calcium to be of but little value.

Treatment No. 9: *Oils*. The oil treatment increased the hemoglobin and red cells to a slight extent, but lowered blood pressure. Fifty per cent. of the patients gained in weight and showed decrease in tubercle bacilli in sputum. No effect on

high temperature cases. Caused gastric annoyance. The oils used were a combination of the essential oils.

Oils in Ward Q cases were of but little value.

It is interesting to note, however, that the oil treatment was most beneficial in those with high blood pressure, while the mineralization treatment was beneficial only to those with low blood pressure.

Treatment No. 10: *Vaccine therapy*. Vaccine therapy in tuberculosis has proved its worth and stands on firm ground in the first and early second stages of the disease. Vaccines give additional strength by reinforcement with antibodies. Tuberculin in some of its forms comes under the vaccine heading. Vaccines produce an active immunity, patients producing for themselves antitoxines. To combat toxines overintoxication should be avoided. A vaccine is a sterile culture of the organisms causing the disease for which it is to be used. There are no fixed rules as to dose. Begin low and increase gradually. Use clinical guides based upon observation of previous work performed with opsonic index as guide. Vaccine in violent cases of acute sepsis, cannot create resistance and therefore no effect is obtained. Small doses are best, repeated each fourth day. If negative phase appears, increase the intervals and lessen the dose. Vaccines are especially useful where the blood shows poor resistance. The differential white cell count is the best indication of the resistance of the patient. The general clinical condition is the guide to the dose.

Wright, of London, deserves the credit for awakening us as to the value of vaccine therapy, and for giving us its technic. Good results are being obtained from vaccines in all different affections characterized by germs, that is if not too acute and overwhelming. Vaccines improve the general condition, destroy infection, and decrease temperature. Vaccine therapy of tuberculosis consists of, 1, the tuberculosis vaccine; 2, secondary pyogenic infections by the specific bacterial product indicated by the character of the secondary infection. An exact diagnosis of the infection not always necessary. We used Sherman's vaccines, letter P, consisting of

Streptococcus	30,000,000
Pneumococcus	40,000,000
Staphylococcus aureus and albus each.....	100,000,000

given every fourth day by hypodermic injection.

Summary: No disagreeable reactions; slight decrease in temperature; slight gain in weight; no change in general condition.

Treatment No. 11. *Combined bacterial vaccines* (Van Cott). From the rapid and valuable action of these vaccines in such infections as tonsillitis, erysipelas, and puerperal septichemia, we were led to use this form of vaccine quite thoroughly. Our results were: No material change at the end of two months; no disagreeable reactions; tendency to diminish temperature; general gain in weight; an improved sputum analysis. It is undoubtedly a valuable treatment if persisted in long enough, but patients of the type we are working with must have their secondary infections eliminated more quickly than these vaccines could do. These vaccines are:

Streptococcus	50,000,000
Bacillus coli communis	100,000,000
Staphylococcus (aureus, albus, citreus)	500,000,000
Pneumococcus	100,000,000

Dose, 0.5 c. c. every fourth day for two doses, then one c. c. continued at four day intervals.

Treatment No. 11: *Toxines or filtrates*. Toxines or filtrates are used by many investigators in different conditions. Zycoff says that in cancer it is the cancerous toxine that causes constitutional decline. Dr. W. B. Coley has been using toxine in the treatment of cancer and carcinoma for nineteen years and is said to believe that the toxines either destroy the cancer cells completely or render the soil unfavorable for further growth. On this basis we thought of this treatment in tuberculosis. From toxines we get a constant hemolysis. In cancer, toxines were found to be prophylactic against recurrence in fifty per cent. of the cases. Toxines or filtrates may be given by inoculation, autoinoculation, or autotherapy. They have been used for centuries under organotherapy, isopathy, and more recently by inoculation, autoinoculation, or autotherapy. We believe toxines or filtrates injected into the system or transferred from one part of the system to another, do good except where there is already an overintoxication present.

Treatment No. 12: *Schafer's mixed infection vaccines*. This new therapeutic agent in the treatment of infections as described by Dr. A. F. Schafer in the *Therapeutic Gazette* for April 15, 1911, was used by us in our research quite extensively. The reactions from this treatment varied according to dose and the patient's resistance. In some cases as marked reaction would be obtained from 0.5 c. c. intravenously, as would be obtained from five c. c. in another patient. We found contrary to our advice on this treatment that reaction was not necessary, as injections even without reactions would lower the temperature and increase resistance. The reactions are in fact dangerous for moribund, terminal, and very weak cases, as they hasten the end in such cases. Repeated injections where there was not strength enough for reaction would finally bring about reaction, and if too strong a reaction it hastened death. Where there was reaction the patients were markedly improved mentally, and the temperature lowered, but they were severely aggravated as regards the vascular and respiratory systems until the third day. After many injections intravenously, the veins do not stand out so prominently and the intravenous method becomes more difficult. This is true of any such treatment in this disease. The intravenous method of this treatment in very weak, terminal, or moribund cases is dangerous. Subcutaneous injections, however, are not so and undoubtedly increase the strength of the patient, lower the temperature and prolong life. They are undoubtedly of value in septic or toxemic cases with proper doses, although they hasten the end in improper doses. The following reactions were noted: Dose intravenously from one half to one c. c. is sufficient, subcutaneously five and ten c. c. given without any severe reaction in some cases, but in others a reaction from almost any dose. Chill after intravenous use, none or slight to severe, and of five to forty minutes' duration; after subcutaneous

use, generally no chill; perspiration slight, most marked on face and chest; vomiting, generally once if no pain in stomach; bowels moved, once or twice offensively; the face was drawn, suffering, anxious, and deathlike; patients slept well, but poorly when too frequent doses were given. As to pain, there was no relief, but aggravation, with dyspnea, cardiac and pleuritic. Temperature, pulse, and respiration after chill, all decreased to subnormal; but three hours afterward were all elevated. Improvement was most marked on the fourth day. This improvement, however, in our cases was not lasting. Many patients refused injections after several reactions, which are terrific and frightening. Others in the ward refused to take the so called chill treatment.

Summary: Improvement gained was transitory in our cases after as high as thirty-two injections; some patients were still *in statu quo ante*. Discontinued on account of reactions, which were very disagreeable. From an article by Dr. I. H. Alexander, of Pittsburgh, on secondary infections in pulmonary tuberculosis in the *NEW YORK MEDICAL JOURNAL* for October 5, 1912, we find that he reports rather favorable results from these vaccines.

Treatment No. 13: *Schafer's tuberculosis vaccine*. Given only to a few patients owing to its terrific reactions even in one drop doses. We are making another trial of this treatment.

Treatment No. 14: *Dr. Cocheu's filtrate*. Thinking that the same toxine or filtrate as the Schafer vaccine, but with known dose, might have less reaction and give better results, Dr. L. F. Cocheu, at my suggestion, at his own expense made up a filtrate from the ten microorganisms found by Doctor Hastings to complicate tuberculosis, according to Doctor Schafer's method. With these our reactions were less and the results similar:

Summary: Of but little value in our cases.

Treatment No. 15: *Dr. C. H. Duncan's autotherapy filtrate*. In various articles great prominence has been given to this form of treatment.¹

Summary: After an extensive trial in various doses from 0.5 to five c. c., we considered this treatment in the same class as tuberculin, as the effects are almost identical and the tuberculin is much more scientific as to dose and convenience. Of little value in our cases.

Treatment No. 16: *Tuberculin*. The majority of physicians are at this time thoroughly acquainted with tuberculin and its effects, but the question has been asked so often whether it was useful at all in late stages of tuberculosis that we decided to give it a thorough trial to see if there would be any results worth while. Tuberculin is said to be a useful aid with mercury by causing hyperemia and softening the tuberculous areas by giving better penetration to the mercury. After mercury the patient can be given four times the previous amount of tuberculin without reaction. It is best to give them in alternation. We have already mentioned the work of Mendel, of Germany, with arsenic and tuberculin.

Summary: Tuberculin by mouth in doses of from 1/1,000 to 1/5 mg. in various cases over various intervals gave negative results in these patients. Of no value in second and third cases.

Treatment No. 17: *Tuberculin injections, one mg.*

to ten mg. Results negative except disagreeable reactions from the larger doses.

Treatment No. 18: *Antistreptococcus serum*. From the great preponderance of streptococcus germs just before death we hoped the antistreptococcus serum might be of benefit though reports from Europe were to the contrary. We used antistreptococcus serum, from ten to twenty c. c. daily. Owing to the cost our work with this serum was not very extensive, but out of six cases treated one of which we had from the beginning following a typhoid attack, it was quite conclusive that this serum would not help us much in these cases.

Summary: Negative but further trial would be interesting.

Treatment No. 19: *Quinine in various doses*. Results negative; of no value.

Treatment No. 20: *Baptisia*. Results negative; of no value.

Treatment No. 21: *Formaldehyde solution*. From Potter's *Materia Medica Compend* we found that this powerful antiseptic, ranking next below mercuric chloride as a germicide and above it in being but slightly toxic to the higher animals, has been used in puerperal septicemia in a one to 5,000 solution, intravenously and successfully. We therefore tried this treatment in a number of cases, using a one to 6,000 solution. Results were of but little value.

At about this time in our investigation we were quite discouraged as to ever finding a treatment which would be of any use in this class of cases. We are indebted to an article in the *Medical Century* for April, 1912, by Dr. W. F. Maxwell, of Toledo, Ohio, for the next line of treatments undertaken. He brought to our attention a reprint by Dr. Z. L. Balwin, of Kalamazoo, Mich., of an article read in Chicago in 1908 on the treatment of over 300 cases of tuberculosis all with a temperature of 100° F. or higher with only fifteen per cent. death rate by the use of a mixture of salicylic acid 37.5 per cent., guaiacol 12.5 per cent., and glycerin fifty per cent. in eight ounces of sterile water, used intravenously, asserting a marked amelioration and checking of all symptoms of this disease. It had even been given successfully to a tuberculous patient over four months pregnant. After unsuccessful attempts by two chemists to make up this mixture as reported, we sent west for the method and it was refused. In the reprint certain reactions and results were reported, principally profuse sweating and relief of dyspnea almost immediately after the injections. Knowing this we began working with the three ingredients and found that this same mixture, but using sodium salicylate which will dissolve in the amount of water stated, in place of salicylic acid which will not, would give us the same identical reactions as asserted for the above method.

Treatment No. 22: *Salicylic acid mixture*.

Sodium salicylate, ...	37.5 per cent.;
Guaiacol, ...	12.5 per cent.;
Glycerin, ...	50 per cent.

Dr. J. Hostman, of the College of Pharmacy, reports that no chemical change takes place in this mixture. We are using this mixture in fifty grain doses in 220 c. c. of sterile water.

Our reactions are, first, within a few seconds

¹See *NEW YORK MEDICAL JOURNAL*, December 14 and 21, 1912.

they begin to have a peculiar taste in the mouth, showing its quick penetration; next a flushing of the face and chest, next slight dizziness; perspiration often begins immediately before the injection is finished. We keep the patient in bed from four to twelve hours after this injection, when with sweating comes amelioration of all symptoms. Frequently there will be an appetite for breakfast the next morning, which is the exception in many of these cases. Dyspnea is very much relieved. Occasionally vomiting will follow, but we have found this is generally when there is undigested food in the stomach. The dull, lethargic, listless look immediately improves, and the patient, even the dying, present an appearance of well being. All the symptoms improve. It is a most gratifying treatment, compared to our experience with the foregoing twenty-one treatments in this class of cases. Our improvement in death rate, namely, from sixty-two per cent. to thirty-one per cent., is largely due to this treatment, which is undoubtedly the quickest and most satisfactory treatment for these secondary septicemic and last stage cases. Improvement was noted in temperature, sputum, weight, blood analysis, pulse, and respiration. Frequently the temperature was reduced to normal after four to six injections. The question now comes to us, does this mixture give the results or do they come from some one of the ingredients. We decided to find out.

Treatment No. 23: *Salicin*. Antiseptic and antipyretic. Often used as a substitute for salicylic acid. Useful for obstinate diarrhea. Used intravenously fifty to 100 grains to 220 c. c. sterile water.

Summary: Antipyretic but discontinued; reaction too great.

Treatment No. 24: *Sodium salicylate*, 37.5 grains to 220 c. c. sterile water. Absolutely cannot be given. Most violent respiratory symptoms develop in from five to ten seconds.

Treatment No. 25: *Guaiacol*, from twenty-five to fifty grains in 220 c. c. sterile water intravenously. No reaction, except occasionally a patient will vomit. Should watch kidneys. Contraindicated in nephritis in large doses. Very similar results were obtained from the guaiacol alone as were obtained from the sodium salicylate, guaiacol, glycerin mixture, but with the odds much in favor of the mixture. This in all probability because of the profuse sweating, thus eliminating much of the toxemia. Care must be exercised as to the preparation of guaiacol used. In conjunction with this method we have prescribed the guaiacol by mouth in suppurating glandular and surgical tuberculous conditions and with marked improvement. By mouth great care must be exercised, as it easily caused gastric irritation to such a degree that even the odor nauseated. It is certainly a great aid and will assist materially in our fight against this plague. In connection with our results with guaiacol we are pleased to note that the *American Textbook of Surgery*, page 656, says that in the treatment of local tuberculosis with guaiacol the results are most gratifying. We wish to add that our results with it in systemic tuberculosis especially with the salicylate mixture are not only most gratifying, but that we believe that it is a specific for the secondary infections.

Treatment No. 26: *Vanadium*. Sodium vanadate

in doses of two to five mg. is now under observation.

SUMMARY OF TREATMENT.

Treatment depends to a marked degree upon the stage of the disease. The tubercle bacilli cause less trouble and are more easily eliminated than the complicating mixed infection. All stages have the mixed infection to contend with. Immunity should be produced during childhood by avoidance of excesses and right living.

1. To get rid of the germs: Guaiacol mixture intravenously has given us our best results up to the present time.

2. To make the soil unfavorable for their growth: Tuberculin in early stages; it is of no value in later stages.

Vanadium, which we are now working with, we believe will be a useful treatment for making the soil unfavorable for growth in these last stage cases, possibly in all stages.

We have tried to give credit throughout this article for our different sources of information, but as much of our material was taken in notes from our reading, we have undoubtedly not mentioned many authorities whom we should. To all, however, we extend our thanks.

571 PARK AVENUE.

WHOOPING COUGH.

Some Interesting Data on Its Relation to Malaria.

By S. R. KLEIN, M. D., Ph. D.,

New York,

Formerly Professor of Histology and Embryology, Fordham University School of Medicine.

For the last twenty years many discoveries have been made on the microscope stage in regard to the protozoa of whooping cough. Belha, Henke, Kurloff, Czapslewsky, and especially Spengler, Jochman, and Krause, found a bacillus in the sputum of the patients, which resembles the influenza bacillus. Recently this has been called *Bacillus pertussis*, Eppendorf. It was isolated in cases of bronchopneumonia, but could not be demonstrated in ordinary cases of pneumonia.

According to Ager the disease certainly spreads among children by contact, and Baginsky states positively that he has observed transmission through a third person. The virus seems to adhere to rooms and furniture, and one attack usually confers immunity. The literature on the bacteriology of this disease is as confusing as it is extensive; the most striking feature being the lack of unanimity of results.

Czapslewsky and Hensel (*Deutsche medizinische Wochenschrift*, xx, 23, p. 586) found a small, short, polar staining bacillus, slightly larger than the influenza bacillus, but which grew upon nonhemoglobin media. This organism was isolated from sputum on blood serum plates. Davis (*Journal of Infectious Diseases*) examined the sputum in sixty cases, and his observations point to the fact that there is almost constantly present an organism which, morphologically and culturally, is identified with the influenza bacillus, occurring in greater number than any other organism. This organism

was not abundant during the spasmodic stage of the disease. It has been found several days before the whoop began, and as long as six months after the disease.

I had myself opportunity to examine a few cases of whooping cough in Wakefield, one of the most distant parts of New York. I must mention, at the same time, that Wakefield is well known for its "malaria grounds."

The bacillus of whooping cough found in children who have contracted the disease when malaria was also present, has been detected in much greater quantity, and is of immensely more dangerous character than other cases or those occurring in any other part of the metropolis. It is now certain that whooping cough develops quicker and to a greater extent in regions where malaria is a so called "home disease."

Macewen (*British Medical Journal*, 1908) successfully conveyed the virus to a healthy cat by feeding it with milk containing the sputum and vomited material from typical pertussis cases. The cat showed whooping cough seventeen days afterward. This experiment appears to show that cats may be the means of disseminating the disease. I tried myself to convey the virus to dogs, rabbits, and guinea-pigs, but without results. Some cases are mentioned where cats had contracted the disease even in five to six days.

Churchill states that a differential leucocyte count of the blood is very useful in the early stage of the disease. In most cases there is a lymphocytosis. I found in a few cases a large quantity of albumin and a heavy, white precipitate of uric acid in the urine.

Bendetti holds that the glycogenic function is lowered in pertussis and that very slight excesses of sugar cause glycosuria.

There was observed hemorrhage only in two cases under my treatment. In both cases the leucocyte count ran as high as 30,000.

565 EAST 242D STREET, WAKEFIELD.

APPENDICITIS OR NOT APPENDICITIS?

By HARRY A. SCHATZ, M. D.,
Philadelphia.

I desire to relate the experience I have had with a patient whose case presented symptoms which at one time two physicians pronounced to be those of mental derangement, while at other times they were pronounced to show marked neurasthenia associated with evidences of chronic gastric catarrh; and which case, after a history of suffering lasting for more than four years, was completely cured by an operation for appendicitis. One who has seen the sufferings and observed the actions of this patient as I have, must consider the effects of this operation as little short of miraculous. Here are the salient features of the history:

CASE. J. L., Jew, nineteen years of age, was brought to me for treatment in 1907. His symptoms and my examination pointed to a diagnosis of chronic gastric catarrh. But at times he was subject to attacks of abdominal pains which were more or less generalized, localized surely not in the appendicular region, in fact, more in the hypochon-

driac region, if at all. But the rigidity was general over the abdomen, and the patient would stretch and squirm and groan, and beat his head so that these evidences of mental anguish wholly overbalanced the meagre findings on physical examination.

I prescribed repeatedly for gastric catarrh, without affording him any permanent relief. Gastric lavage was not permitted. He was seen also by other private physicians, without any better results. Furthermore, as time went on, his behavior became more and more violent, so that his parents and the other members of the family were afraid of him. He acted like a maniac, beating his head, groaning, undergoing bodily contortions, and always reiterating the one complaint, pain in the abdomen. There was rigidity, but it was considered to be of nervous origin. There was no fever. Work was out of the question. He could not walk the street even without stopping at frequent intervals till his pains subsided.

After having suffered for about two and one half to three years, he visited a dispensary in this city, where they pronounced his ailment to be appendicitis and recommended operation. But on admission to the ward, his case was diagnosed as neurasthenia. I advised against operation because there were no signs pointing to appendicitis, and to reassure myself as well as his family, I had him admitted to another hospital. Here, after a stay of a few weeks, he was discharged, no signs of appendicitis having been discovered.

Subsequently, his conduct at home became such that his parents feared for their own as well as their family's safety—he threatened to use a knife and to do violence to himself or to others. His parents were willing to have him removed to an institution where he would be under the proper restraint. Steps were taken to bring this about, but fortunately for him, it was never carried out.

Some time later, in April, 1911, while riding on a wagon, this patient was seized with severe abdominal pains, and fell from the wagon in front of one of the hospitals of this city. He was admitted to the ward, operated upon for appendicitis, discharged about eight days thereafter, and has been perfectly well, free from all symptoms since that time, almost two years ago.

The hospital records show that he exhibited exaggerated mental symptoms and that the diagnosis at operation was chronic catarrhal appendicitis.

1331 NORTH FRANKLIN STREET.

Abstracts and Reviews.

THE SIZE OF ORGANISMS AND THEIR CONSTITUENT PARTS IN RELATION TO LONGEVITY, SENESCENCE AND REJUVENESCENCE.*

By PROFESSOR EDWARD G. CONKLIN,
Princeton, N. J.

Variation in size between different living species is well known to be very wide, running from the ultramicroscopic organisms to mammals weighing many tons. What is more striking is that there is not infrequently seen, in a single species, a wide variation in size of individual members. In my studies I have come across a species of marine gastropods which live on shells inhabited by hermit crabs. In this species the females are much larger than the males, and, further, there is a race of dwarfs which live on smaller shells inhabited by dwarf hermit crabs. These dwarfs are only about one thirteenth the size of the normal, but are perfect in development and real sexual maturity and procreate pre-

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, March 8, 1913.

cisely as do the full sized forms, giving rise to a race of dwarfs.

The causes of the variation in size of organisms may be considered under several headings:

1. There are the hereditary or racial factors. These remain more or less constant for any given species and are almost solely a matter of inheritance. The inherited factors are the natural capacity for growth and its relation to the limits of growth, and the ratio which exists between the processes of assimilation and dissimilation. These factors are possibly of a chemical nature, but of this we know very little.

2. Environmental influences. In the case of the dwarf gastropods which live only upon small shells, if these are removed to large shells they will grow and reach the normal size of the species. In this case environment plays an important part, but in the majority of instances environment has but slight influence on the size of the organism.

3. There are several extrinsic factors influencing the size of the organism, among which may be mentioned the abundance of food supply; secretions of the glands such as the sex glands, thymus, pituitary, etc.; chemical factors; temperature; oxygenation; retention or removal of waste products; normal or abnormal extraneous stimulation or irritation. All of these factors are self evident except the last. By way of illustration of this we may cite the case of the removal of the dwarf gastropods from small to large shells. Here some external stimulus is undoubtedly the cause of the increased growth, or, rather, some external inhibiting factor was the cause of the dwarfing.

4. The rate and duration of growth has some influence on the size of the organism, for it is well known that generally the larger the organism the slower its growth. The cause of this phenomenon cannot be discussed here.

5. A last point is the size of the original germ cells, both ova and spermatozoa. If these are large the organism is likely to be large, and the converse is also likely to hold for many species. This factor is well illustrated in the case of certain rotifers which lay two sizes of eggs, a large and a small. From the large eggs large females are hatched, and from the small come the small males. The relation of the size of the germinal elements to the size of the organism is not constant, and the opposite phenomenon of large organisms arising from the small eggs is not infrequent. In general this factor also plays but a subordinate rôle.

In addition to variation in the size of the organism as a whole there may be variation in its constituent parts or organs, and in its component cells.

The variations to be found in the constituent organs are of two kinds, variation in size or variation in number. In the vegetable realm and in the lower forms of animal life, size of the organism is directly proportional to the number of constituent parts or segments. This is well shown in the case of tapeworms, which grow indefinitely by the increase in the number of segments. On the other hand, in the higher forms, the number of constituent parts or organs is constant for any given species, and differences in the size of the whole are due to differ-

ences in the size of the several constituent parts. The more complex the function of the part the less the tendency to multiplication.

The size of the body may also be dependent upon the size or the number of the component cells. The influence of these factors can be expressed axiomatically by the statement that the complexity of differentiation and the power of multiplication of cells stand in inverse ratio. The more complex cells may increase in size, but not in number; for example, muscle and nerve cells are perhaps the most highly differentiated of all and these are not more numerous in giant forms of a given species than in the normal, but the individual cells are larger.

The number of cells varies with the body size only in the case of nondifferential cell divisions.

Hertwig and his followers have held that there is a constant relation between the size of the nucleus and that of the cell protoplasm. This they have termed the *nuclear plasma ratio*. I have found no such constant ratio; in fact the ratio varies greatly at different stages in the same cell. The nucleus is quite variable in size, while the cell body is very slightly so. The ratio is variable even at the same stage in different cells of the same type. The growth of the nucleus is due to its assimilation from the cell plasma of achromatin and its size is directly proportional to the amount of achromatin in the cell. At the time of the division of the cell the nucleus again gives up its achromatin to the cell plasma and the process of growth starts anew.

Coming now to the question of longevity, it may be said to depend upon the relation existing between the processes of anabolism and catabolism. Life continues just so long as assimilation holds the ascendency over dissimilation.

Senescence is not constant for the entire organism and is thought to depend upon two groups of factors, the structural and the functional.

1. *The structural*: (a) Minott holds that a decrease in the size of the nucleus and an increase in the relative amount of protoplasm is a cause of senescence. This is probably incorrect for, as we have shown, the size of the nucleus is merely a matter of the abundance of achromatin in the protoplasm of the cell. Further, many of the cells which have been held by this school of observers to be senescent are precisely those which have the largest nuclei in relation to their cell plasma.

(b) A structural cause which does probably play an important rôle is an increase of the metaplastm and a decrease of protoplasm. This can be demonstrated readily.

2. *The functional factors* of senescence: (a) The accumulation of waste products is probably of considerable importance.

(b) A decrease in the interchange of the cellular products between the nucleus and the plasma of the cell.

These functional causes are essentially matters of adaptability and regulation on the part of the cell and its parts to the conditions of environment. An interaction between the nucleus and the cell protoplasm is essential to life, and an interruption of such interaction brings about senescence, while an increase of this interaction is the prime cause of rejuvenescence.

Therapeutical Notes.

Vaccine Treatment of Erysipelas.—W. H. Watters, in the *American Journal of Dermatology* for July, 1912, states his opinion that vaccines, both autogenous and polyvalent, have a decided and important place in the treatment of erysipelas. He treated thirty cases with a stock vaccine prepared from several patients and to which was usually added a number of strains of streptococci obtained from various other virulent infections. In addition, this treatment was supplemented by autogenous preparations whenever possible. The first dose was given as soon as the diagnosis was evident, and followed after one or two days by a second, third, or fourth. Five or ten million organisms were usually given at first; later, ten or fifteen million.

The vaccines seemed decidedly to abbreviate the course of the disease. In several cases where the prognosis had been very grave, their use was followed by convalescence. The vaccines also promised much in the prevention of recurrent attacks. Three of the thirty patients treated died, but in these the condition had been so desperate that no results could be expected. In three cases in which there had been repeated recurrences up to the time of treatment, no further attacks occurred.

Dental Disinfection.—The following combinations are advised in *Paris médical* for November 16, 1912, for this purpose:

I.

℞ Tincturæ iodii, ...	} ana 3iiss (10 grammes).
Tincturæ aconiti, ...	
Chloroformi, ...	

M. ft. collutorium. Sig.: To be painted on the gum.

II.

℞ Potassii chloratis, ... gr. xxx (2 grammes);	} ana 3iiss (10 grammes).
Mellis rosæ, ...	

M. ft. collutorium. Sig.: To be applied to the gum.

III.

℞ Phenolis, ... gr. xv (1 gramme);	} 3iiss (12 grammes);
Glycerini, ...	

Aquæ destillatæ, ... 3viii (250 grammes).

Fiat solutio. Sig.: To be used as mouth wash.

Treatment of Herpes zoster.—E. Leullier, in *Quinzaine thérapeutique* for September 25, 1912, discusses the physical measures that have proved most effective in this affection. In the beginning and when the eruption is at its height the galvanic current is of most value, as it shortens the period of vesiculation, relieves pain, and tends to prevent subsequent neurotic trouble. As for the intensity of the current to be used, Leullier favors strong applications, e. g., a fifty to seventy milliampère current used for one half hour, which has appeared to him to give better results than weaker applications. Belot recommends that, with an electrode fifteen to twenty cm. in size, a current up to thirty or thirty-five milliampères be passed for thirty or forty minutes. Roughly, 1.5 milliampère may be used for each square cm. of the area covered by the electrode. Where there are ulcerations, the electrodes are not well borne; either they should be applied without the ulcers, or the latter previously covered with collodion.

The faradic current, applied by means of a fine

wire electrode, acts well in relieving pain, but is itself at first painful, and does not exert much effect on the trophic disturbances. Hot air applications favor the desiccation of the vesicles and healing, but as regards the relief of pain, are more effective at a later period.

After the period of acute inflammation is past, neuritis alone being present, the high frequency current is frequently very efficient, and should probably have the preference over other measures. Good results have also been reported from the x rays in this stage, but the beneficial effect is by no means constant.

Formaldehyde Irrigations for Bladder and Kidney Infections.—Curtis F. Burnam, in the *Archives of Internal Medicine* for October, 1912, states that formaldehyde solution irrigations are especially valuable in cystitis associated with ammoniacal decomposition of the urine, such as occurs with enlarged prostate or tumor of the bladder. There are marked individual variations, however, in the tolerance of the vesical mucous membrane to formaldehyde, which are independent of the state of inflammation present. An acutely inflamed bladder is much more intolerant than a healthy one.

In chronic cystitis and in healthy bladders the author found it practicable to use solutions varying in strength from one to 3,750 to one to 7,500. Occasionally a bladder was met with which did not tolerate even the latter solution, but no cases came under observation which would not tolerate a one to 12,500 solution.

It was found the kidney pelvis, injected by means of a renal catheter, would tolerate solutions as strong as the bladder. No irritation in the kidney itself was ever noted after such an irrigation.

Prevention and Treatment of Nasal Synechiæ.—E. J. Moure, in *Revue hebdomadaire de laryngologie, d'otologie et de rhinologie* for October 26, 1912, refers to the fact that none of the procedures hitherto recommended for the prevention of intranasal adhesions after operations on the turbinates, e. g., the interposition of cotton, iodoform gauze, cardboard or celluloid plates, or gutta percha, between the raw surfaces, or cauterization with chromium trioxide, has given uniform satisfaction. He has found that thin sheets of mica may be depended upon to keep the apposed surfaces apart, even in the most obstinate cases, without causing any local irritation. This substance can be reduced practically to the thickness of tissue paper, can be easily sterilized by heat without melting or breaking, and is both malleable and elastic, so that it can first be formed into any desired shape, and then introduced into the nasal cavity bent upon itself, when by virtue of its elasticity it will straighten out, constituting a partition which will cover the septum from top to bottom. Once placed against the tissues, it is hardly distinguishable from them, owing to its tenuity. It does not in the least prevent the flow of secretions, and can hardly be considered as a true foreign body, so that healing takes place in a steady and normal manner on either side. Whatever are the modes of reaction of the mucous membranes after the operation, the cut synechiæ are prevented from recurring. The usefulness of the procedure was proved in a number

of severe cases, in which synechiae had previously regularly recurred, though the inferior turbinate had been subjected to wide resection and the usual precautions to prevent adhesion taken.

Treatment of Infections of Urinary Tract.—Berghausen, in the *American Journal of Dermatology* for August, 1912, discusses the use of vaccines in these conditions. In localized acute specific urethritis vaccines seldom cause a marked improvement, but experience tends to show that complications resulting from an extension of the process occur less frequently after their use. The resistance of the patient is specifically stimulated by them. When the general system has been invaded, moreover, a specific arthritis without suppuration developing, the vaccines are of distinct benefit in hastening the healing process, especially if Bier's congestive treatment or hot applications are employed in addition. In gonococcic peritonitis localized to the pelvis the author has seen rapid improvement follow the first injection of a vaccine. Some observers assert that vaccines can be of distinct value in chronic localized gonococcic conditions. In the writer's experience it has been possible to cause the so called "morning drop" to disappear, but no more; shreds, if they had been present previously, continued to be passed.

In severe acute colon bacillus infections, usually seated in the renal pelvis, but also involving the kidney itself and later the ureter and bladder, in cases where both sides are involved, or when an operation is not granted in unilateral infections, the exhibition of autogenous vaccines is of some value in lessening the symptoms, lowering the temperature, and shortening the course of the disease. The bacilli continue to pass, but their number is diminished.

In bilateral tuberculous infections of the kidneys, the excessive pain and urination may be relieved by tuberculin. Sahli appears to have been able to cure an early renal tuberculosis with it. While such a result is not ordinarily obtained, the use of tuberculin in this condition is frequently followed by decided improvement.

Treatment of Inoperable Cancer Cases.—Castaigne, in *Quinzaine thérapeutique* for September 10, 1912, commends the use of quinine as a palliative in inoperable carcinoma. He advises the employment of the intramuscular and oral routes of administration on alternate days. A one to ten solution of the bihydrochloride of quinine is used for the injections, and two to three c. c. of the solution are given each time. Little or no pain is produced by these injections, and local inflammatory phenomena never result. On the days intervening between those on which the injections are given, 0.5 gramme (7.5 grains) of the same salt of quinine is administered in capsules. If gastric disturbance results, it is better to use the injection method exclusively than to resort to quinine enemata or suppositories.

Almost constantly quinine thus administered will cause a marked diminution in the pain and hemorrhage, as well as an improvement in the general condition. In illustration of the results frequently obtained, the author cites the case of a woman suffering from recurrence of a cancer of the cervix,

already in profound cachexia, in whom the use of morphine was rendered unnecessary by the quinine, the discharge ceased, and the fatal ending was postponed for four months. In a case of gastric cancer, expected to terminate within a week, life was similarly prolonged for eight months, and the general condition for a time remarkably improved. In a case of recurring breast cancer the ulcerations healed under the quinine, the patient only succumbing three months later to lung involvement. The author believes it worth while to use quinine in conjunction with the x rays or radium for the purpose of preventing recurrence after operation in cancer cases.

Treatment of Pruritus.—J. L. Bunch, in the *Practitioner* for September, 1912, states that the irritability of an itching skin can sometimes be diminished by very simple means, such as an evaporating lotion of equal parts of camphor water and *eau de Cologne*, daubed on every few minutes. The efficacy of this measure is increased if the skin has previously been sponged with very hot water, or a vapor or Turkish bath taken. When the pruritus is extensive, a starch bath to which two ounces of sodium carbonate, bicarbonate, or borate have been added often gives great relief. Sulphur baths suit some cases well.

In generalized pruritus phenol in lotion form, or a one to 1,000 solution of mercury bichloride, will often arrest a severe paroxysm of itching. The following lotion has given good results in the author's hands:

℞ Chlorali hydrati, } āā 3i (4 grammes);
Camphoræ, }
Aquæ coloniensis, ...3ii (30 c. c.);
Aquæ, q. s. ad.....3viii (240 c. c.).
M. ft. lotio.

Where there are many abrasions, it is better to use a weak solution of cocaine or other analgesic in combination with liquor plumbi subacetatis. A paint of methylene blue, four grains to the ounce, is sometimes successful, combined with pills containing one grain given night and morning. The following may be used as a protective and soothing lotion:

℞ Balsami peruviani, } āā 3i (30 grammes);
Zinci oxidi, }
Glycerini, ...3ii (8 c. c.);
Aquæ rosæ, q. s. ad.....3viii (240 c. c.).
M. ft. lotio.

Powders are useful where there are abrasions and some oozing, and can be made up with various analgesics, but they are unsatisfactory if the object is to exclude the air or protect the skin from scratching. For such purposes preparations with Lassar's paste as base are preferable. Many patients scratch unconsciously during their sleep, with resulting troublesome local excoriation, especially in the aged. In these patients it is often necessary to order hypnotics or morphine suppositories.

Upon the internal administration of drugs in pruritus Bunch does not place great reliance, with the exception of aperients and intestinal antiseptics. Of the latter, he favors chiefly phenyl salicylate and related products. Severe cases necessitate hypnotics or narcotics such as sulphonmethane, chloral hydrate, or opium, which, by procuring a few nights of good sleep, will often prevent a serious breakdown in neurotic patients.

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THE PROPOSED AMENDMENT TO THE PRACTICE OF NURSING ACT.

In our issue for January 4th we commented editorially upon the recommendation of the New York State Nurses' Association to have the law on the practice of nursing so amended as to debar from practice all nurses who have not had hospital training. We held that many faithful women, well trained theoretically, became subsequently very efficient under the guidance of physicians for whom they nursed, and that before we could be convinced that the proposed amendment would not prove harmful to the public, we deemed it necessary to be shown, 1, that the State as a whole was supplied with a sufficient number of hospital trained nurses to meet the needs of all sufferers therein requiring such aid; 2, that in order to provide for the vast majority of patients, the small wage earners and the poor, who are now provided for by nonhospital nurses, an adequate number of hospital nurses would give their care for a moderate sum, say from eight to fifteen dollars a week. Although more than two months have elapsed since our comments were published, the New York Nurses' Association has failed to dispel our fears that the proposed amendment would prove, if adopted, a public calamity.

An investigation by members of our staff directly interested in two hospital nurse training schools, has, on the other hand, brought out interesting facts concerning the practical efficiency of nurses who, though well prepared theoretically to follow strictly the instructions of attending physicians in the sick-room, had not received hospital training. Out of a large number of letters sent out to ascertain the actual practical value of such nurses (all graduates of a school which, on close inspection, had been found by us to do eminently conscientious work), five hundred and twenty-two answers received, so far, from physicians practising in New York State, attest to their efficiency and, in most instances, in glowing terms. Moreover, and rather contrary to our expectations—for we started with a certain prejudice in favor of hospital trained nurses—but *two* physicians out of the five hundred and twenty-two expressed a preference for hospital nurses, while *twenty-seven* volunteered the information that they had found nonhospital nurses quite as efficient as their hospital trained sisters, and in some instances preferable. "Many, not some, but many of our non-hospital nurses excel in many ways the hospital trained nurse," writes one of our correspondents. This tends to suggest, as another physician expresses it, that "hospital training is not essential to a good nurse." We shall not enter into the merits of this question, our only purpose being to emphasize the fact that the women the nurses' association wishes to strike, and even to deprive of the title of "nurse," are rendering very efficient services.

This irrefutable conclusion entails another which, considered only from its humane aspect, should stay any hasty legislation tending to modify the law in relation to the practice of nursing. Ninety per cent. has been authoritatively given as the proportion of nonhospital nurses in actual practice. One tenth, then, of our nursing force, the twenty-five to thirty dollars a week type, wish to deprive ninety per cent. of our sufferers unable to pay such prices, of that form of trained nursing which assists so greatly the general practitioner to carry on efficiently his lifesaving mission. Indeed, while a large number of physicians are absolutely dependent upon nonhospital nurses for the proper care of their patients, "there is an urgent demand at all times for a moderate priced nurse who is efficient," writes one of our medical correspondents; "many patients could not have nurses, were it not for them," writes another; "they fill a great need in our rural communities," writes a third; "and any legislation which debarred them from practice would work a great hardship to the people of this vicinity," and, we would add, to all people of moderate means in the State of New York.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

The unsavory performance now going on in New York with a revival of a twenty year old method of attacking tuberculosis leads naturally to the thought whether the white plague will ever be cured by tuberculins, serums, *Immun-Körper*, cultures, or any similar preparation. The history of these so called specifics of which high hopes have been entertained is no more encouraging than that of many other supposed remedies for tuberculosis; they have all flashed up like the rocket and come down like the stick, as far as the pulmonary form of tuberculosis is concerned—and it is the pulmonary form which interests both physician and patient. Tuberculins, Koch's or Calmette's or their various modifications, have resulted in cures of cutaneous and glandular tuberculosis, forms which tend toward spontaneous cure, but no cure of phthisis is on record which cannot fairly be attributed to the diet, fresh air, and other agencies which are successful when used apart from any specific. Even the successful results in the first and early second stages are open to question when we recall the large proportion of subjects who show healed pulmonary lesions at autopsy, though the existence of tuberculosis at any time during life had never been suspected. That tuberculosis is eminently a self limited disease is well known. Furthermore, it is the custom in hospitals to select cases for treatment by tuberculin; cases usually which progress slowly, which do not exhibit high temperature, etc. Could not the cognoscenti tell many a story of hemoptysis, obstinate febrile reaction, or other grave accident following an injection?

From the serums of Maragliano, Marmorek, Lannelongue, Achard, Gaillard, Vallée, Jousset, Arloing, and others, what results have been obtained outside a few isolated surgical cases? Rénon and Guimard, Calmette himself, all firm believers at one time, have lost confidence. The apparently favorable results in renal tuberculosis we believe can be explained by the long remissions in this form of the disease, and there are surgeons who teach that some cases of renal tuberculosis tend toward spontaneous cure.

Spengler's *Immun-Körper* produce reactions similar to those of tuberculin; it is in renal tuberculosis again that these bodies are said to have produced their best effects. Not a great deal is known about this form of medication, not even its exact method of preparation; certain it is that it has no cure of phthisis to its credit. For a more detailed discussion of these "specific" remedies, however, we refer the reader to an article by Léon Bernard, in *Paris médical* for February 22, 1913.

As a matter of fact, pulmonary tuberculosis is itself still a mystery. Whereas typhoid fever or pneumonia, for example, recognized as infections, always produce the same series of phenomena, evolve, wax, wane, and undergo involution always in the same period, this is far from being the case in phthisis, which varies in its manifestations with the individual attacked. Nothing is more uncertain than the course of phthisis. The disease seems to be Nature's protest at dirt, darkness, and starvation, which open the door to infection, and the solid and trustworthy results we have obtained in its treatment are due mainly to combating these conditions by cleanliness, sunlight, and good food. It is important to put the patient's stomach in order, to inflate his lungs, to get him sleep and rest. When we see the patient early enough the disease fades away before these simple measures. What therapeutic agents we have are beneficial only as they help digestion and put on flesh.

Physicians should lose no opportunity of teaching their consumptive patients these truths, even if they lose them to the next miracle monger who passes their way. Education is bound to tell in the long run, and even the layman can be taught that no disease which comes from ages of neglect on the part of his ancestors, together with carelessness on his own, is going to yield to a few unaided shots from a hypodermic syringe. Let him have these, by all means, if he insists, but enforce upon him the truth that no broken down consumptive can cast off an overpowering disease, if deprived of the upbuilding forces of food and oxygen; if any specific is to win a plausible victory over innumerable millions of the bacilli of Koch, it must have as allies an army of healthy corpuscles coursing through the blood-vessels of a more or less robust physique.

If physiology and chemistry are some day to give us a genuine specific for pulmonary tuberculosis, we believe it will be along the lines of chemotherapy as already traced by Ehrlich for syphilis. It will not act as an entire cure in itself, but will always demand the cooperation of the great forces of Nature, together with a good nurse and a good cook.

PUBLIC HEALTH ADMINISTRATION THE PHYSICIAN'S DOMAIN.

One point brought out by the testimony given before the Special Public Health Commission appointed by Governor Sulzer has not, in our opinion, received the consideration which it merits. We refer to the fact that there are so few trained public health physicians, and that at present there is practically no course in public health in the medical schools. With public health administration gaining

in importance from year to year, our medical schools, with three or four exceptions, continue either to ignore the subject or to content themselves with a few lectures supplementary to the work in bacteriology and hygiene. It is no wonder, therefore, that sanitary engineers are claiming positions as health officers, and nonmedical statisticians desire to have charge of vital statistics.

Every one conversant with the subject knows that public health work is becoming more pronouncedly medical from year to year. In marked contrast to conditions twenty years ago, the sanitary side of public health work, that is, the engineer's side, is gradually being subordinated, or else is being taken out of the health department entirely to be placed elsewhere. In this city, for example, the health department has nothing to do with the removal of rubbish and garbage, with sewage disposal, or with street cleaning. For this reason we believe that the administration of the public health should be regarded as peculiarly the domain of the physician. The public has a right to demand, however, that its health officials be specially trained, and we therefore urge upon the medical schools the provision of adequate courses for training physicians for a career in public health administration. Such courses should supplement the ordinary curriculum in medicine, that is, they should be postgraduate courses, and should embrace at least a year's training in laboratory methods, public health principles, sanitary science, vital statistics, and practical work in some efficient health department. Graduates from such courses should receive a special diploma. Does any one doubt that such training would have an enormous influence on the state of the public health?

DANGER IN UNPROFESSIONAL ANTIFAT TREATMENT.

A man, thirty-eight years of age, a heavy eater and beer drinker, suffering from progressive obesity for the past five years with the not uncommon accompaniments of dyspnea, vertigo, and somnolence, secured from a French pharmacist an antifat remedy containing thyroid extract. After taking this for three days the patient had added to his other troubles an edema which invaded the lower extremities and the scrotum and was accompanied by urgent dyspnea and pain in the hepatic region. An examination in the hospital to which the patient was taken, showed general anasarca, a hypertrophied liver, diminished urine without albumin, a dilated heart, and raised arterial tension. Rest, milk diet, and digitalis helped him considerably, but when presented to the Société de médecine du département du Nord by Pierret, says *Paris médical* for February 22d, there still remained marked râles at the bases, arterial hypertension, and edema about the malleoli. Where the heart is infiltrated with fat,

rapid reduction in weight is fraught with danger; in such cases the hypotensive action of digitalis is very useful.

SULPHURIC ACID IN CARBUNCLES.

F. S. D. Hogg states in a letter to the *Lancet* for February 22, 1913, that since the statement some four years ago by Dr. J. Reynolds and Dr. Russell J. Reynolds of their treatment of staphylococcal invasions by the internal administration of sulphuric acid, he has employed no other remedy in the treatment of boils and carbuncles, except the usual protective dressings, and has had the most gratifying results. Improvement takes place quickly where suppuration has become established, and beginning mischief and secondary crops are promptly aborted. The writer reports a case of acne which had resisted treatment by other measures for thirty-five years, but which improved rapidly under sulphuric acid, and two cases of boils and abscesses in morphine habitués, one with intense itching, which yielded quickly. One case was complicated with pyorrhœa alveolaris, and the condition of the gums improved vastly. The sulphuric acid is given in twenty to thirty minim doses well diluted every four hours.

USE OF ETHER IN INFECTIONS.

Souligoux, noting Morestin's views on this subject, communicated to the Paris Société de chirurgie, on February 19th, his experience with over twenty years' use of ether in infected wounds, lymphangitis, and erysipelas, always with gratifying results. During the past year he used ether by intraperitoneal injection in the treatment of a case of septic peritonitis from intestinal perforation. He had given up hope of the patient, but the ether, as Souligoux is reported in *Presse médicale* for February 26, 1913, administered as a copious lavage, brought about a swift and permanent cure.

Marcille and Cunéo, at the same meeting, reported their own excellent results in cases of panaris and phlegmonous inflammation after the use of ether, although the latter confessed that he was not enamored of the idea of pouring ether into the peritoneal cavity.

BOTTLE METHOD OF RESPIRATORY GYMNASTICS.

According to *Presse médicale* for February 15, 1913, Pescher reported to the Société de l'internat des hôpitaux de Paris on January 23d that his method of respiratory gymnastics by means of a series of bottles continued to give him excellent results. Owing to its simplicity, its appeal to the patient, and its lack of cost, the method ought to be adopted in the daily practice of every physician. The effects were so valuable and so incontestable that the deviser expected it to be used as a matter of routine in the future in both surgical and medical cases, even by bedridden patients. We gave a description of Pescher's bottle method in our issue for December 28, 1912, sufficiently complete to enable any reader to install it.

OPERATING ON HYSTERICAL WOMEN.

Piqué is opposed to operating on hysterical women. In a paper presented before the Paris Académie de médecine, on February 25th last, he advised his hearers never to operate on such a woman unless life was in grave danger. An operation, of whatever nature, constituted for such a subject a psychic traumatism, which, added to the physical traumatism, might give rise to dangerous mental reaction. In some few cases Piqué maintained, according to *Semaine médicale* for February 26, 1913, the removal of a definite lesion might be accompanied by the disappearance of symptoms directly attributable to it; it would be hopeless, however, to expect a profound modification of a hysterical dyscrasia by such an operation as ablation of the uterus, ovaries, etc.

Obituary.

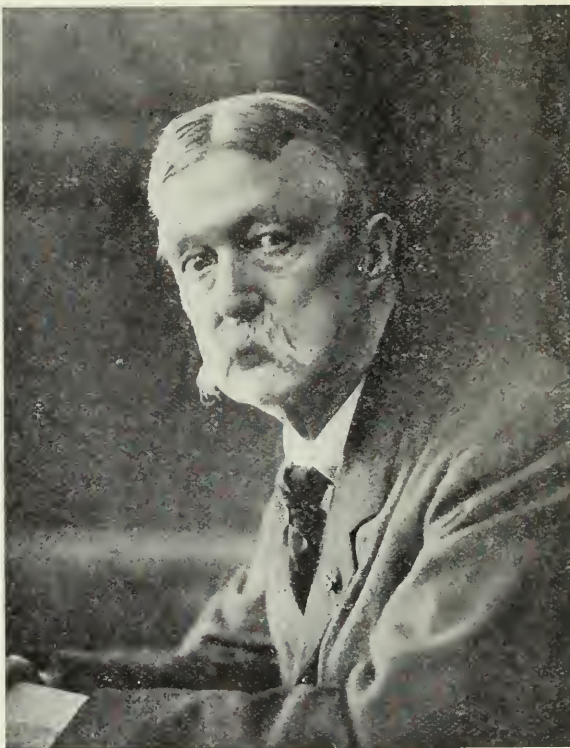
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D. C. L.,
of New York.

Dr. John Shaw Billings died on March 11th at the New York Hospital in his seventy-fourth year. He was born in Switzerland County, Ind., April 12, 1839, graduated from Miami University in 1857, receiving the degree of A. M. three years later, as well as M. D. from Ohio Medical College; conferred upon him later was the degree of LL. D. in 1884 from Edinburgh, in 1886 from Harvard, in 1896 from Buda-Pesth, in 1901 from Yale, in 1902 from Johns Hopkins, beside the D. C. L. from Oxford in 1889, and M. D. from Munich in 1889, and Dublin in 1892. He was demonstrator of anatomy at Ohio Medical College in 1860, and shortly after became assistant surgeon in the army, reaching the rank of lieutenant colonel and deputy surgeon general in 1864; subsequently he was medical inspector of the Army of the Potomac, and at the close of the civil war took charge of the surgeon general's library. Retired at his own request from active service, he became professor of hygiene at the University of Pennsylvania, and from 1896 till it was removed to its present site at Fifth Avenue and Forty-second Street, he was director of the New York Public Library. Doctor Billings was the author of the *National Medical Dictionary* and of the invaluable and unique *Index Catalogue* of the Library of the Surgeon General's Office, as well as of numerous scientific works, and was for

many years a highly welcome editorial contributor to the NEW YORK MEDICAL JOURNAL.

News Items.

Doctor Friedmann in Canada.—According to newspaper reports, Doctor Friedmann treated fifty-six cases of tuberculosis at the Royal Edward Institute in Montreal, on Tuesday, March 11th. The demonstration was attended by fifty physicians from the hospitals and others engaged in private practice, among them being Dr. J. George Adami, professor of pathology in McGill University, who expressed himself as content to await results before judging of the value of the treatment. Others who attended the demonstration were from Quebec, Halifax, and Toronto, and deputations from every Province of the Dominion called upon Doctor Friedmann and invited him to prolong his stay and give demonstrations elsewhere. On Tuesday evening he went to Ottawa, on the invitation of both the Dominion and the Provincial governments, to attend the meeting of the Antituberculosis Association, where he will treat a large number of selected patients. On his return to New York Doctor Friedmann will treat patients in Mount Sinai Hospital, the Montefiore Home, and the People's Hospital. Official tests of the Friedmann cultures are being carried on in the hygienic laboratories of the United States Public Health Service in Washington, under the direction of Surgeon John F. Anderson, chief of the laboratories, who has been detailed by Surgeon General Blue to make these investigations, having been furnished cultures by Doctor Friedmann.



Dr. JOHN S. BILLINGS,
of New York.

Physicians Protest against Cocaine Legislation.—At a meeting of the Society of Medical Jurisprudence, held in New York on Monday evening, March 10th, the members present went on record as protesting against all the various bills now before the legislature of the State of New York regulating the traffic in cocaine.

Prescriptions in English.—A bill has been introduced into the Nebraska legislature by Mr. Smith, which provides that English shall be used in the writing of all prescriptions, and forbids the use of any other language. A similar bill has been introduced into the North Dakota legislature by Mr. Davidson.

The Cleeman Dormitories of the University of Pennsylvania.—Plans are nearly completed for the \$50,000 dormitory building of the University of Pennsylvania, and ground for the building will be broken next week. The new dormitory, which was bequeathed to the institution by Dr. Richard A. Cleeman as a memorial to his brother Ludovic C. Cleeman, will be built in the quadrangle.

Prescribing of Secret Remedies Prohibited.—A bill has been introduced into the legislature of the State of North Carolina making it unlawful for any physician or other person to prescribe or recommend any drug or preparation without knowing its true nature and composition. The prescriber is also required to make known the nature of the composition and is to be expected to do so by the patient.

Moving Pictures of Patients with Nervous Diseases.—At a meeting of the Samaritan Hospital Medical Society, held in Philadelphia, on Monday evening, March 10th, Dr. T. H. Weisenburg demonstrated a series of moving pictures of nerve patients. The discussion of the subject was opened by Dr. Samuel D. Ingham.

Clinical Society of the New York Throat, Nose, and Lung Hospital.—The annual dinner of this society will take place on Tuesday, March 25th, at 7:30 p. m., at the Hotel Imperial. This year the price of the dinner has been reduced to \$3.50, which includes music and entertainment. Those who contemplate attending should communicate at once with the chairman of the dinner committee, Dr. R. Johnson Held, 616 Madison Avenue.

Medical Association of the Greater City of New York.—A stated meeting of this association will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, March 17th. The following papers will be read: Lymphuria, a Clinical Phenomenon, by Dr. Heinrich Stern; Colon Bacillus Infection of the Kidney, by Dr. Winfield Ayres; Bilateral Nephrolithiasis, by Dr. Oliver C. Smith, of Hartford, Conn. Dr. Louis Heitzmann will open the discussion.

Meetings of Philadelphia Medical Societies to be Held during the Coming Week.—Monday, March 17th, Medical Society of Woman's Hospital; Tuesday, March 18th, North Branch of the County Society, Stomach Hospital Gastroenterological Society, and the Philadelphia Laryngological Society; Wednesday, March 19th, College of Physicians (Section in Otolaryngology and Laryngology); Thursday, March 20th, College of Physicians (Section in Ophthalmology), and the Northeast Branch of the County Society; Friday, March 21st, Southeast Branch of the County Society and the Jefferson Hospital Clinical Society.

A Symposium on Tuberculosis of the Urogenital Tract.—The next meeting of the Section in Genitourinary Surgery of the New York Academy of Medicine, of which Dr. Walter Brooks Brouner is chairman and Dr. Joseph Francis McCarthy secretary, will be held March 19th, at 8:30 p. m., in Room 44 of the Academy building. In addition to the reading of papers there will be a pathological exhibit of specimens of tuberculosis of the urogenital tract. Many interesting specimens will be shown. The papers of the evening will be as follows: Debatable Factors in the Surgical Discipline of Renal, Ureteral, and Vesical Tuberculosis, by Dr. Martin W. Ware; Tuberculosis of the Epididymis; Its Effect upon Testicle and Prostate, by Dr. J. Dellinger Barney, of Boston, by invitation; Urinary Findings in One Hundred Cases of Tuberculosis of the Urogenital Tract, by Dr. Frederic E. Sondern.

Popular Medical Lectures by the Bronx Medical Society.—The Medical Society of the Borough of the Bronx is presenting a series of public lectures on medical subjects on Tuesday evening of each week, in the Morris High School, 166th Street and Boston Road. The series began on January 7th and will close on March 25th. The subject for next week is general medicine, and the speakers are Dr. T. Joseph Dunn, whose topic will be Patent Medicine Fakes; Dr. Nathan B. Van Etten, who will speak of the Dangers of Self Medication, and Dr. Reynold Webb Wilcox, whose address will be on What Medicine Will and Will Not Do. On March 25th the general topic will be surgery, and the speakers will be Dr. Henry Roth, Dr. Parker Syms, and Dr. A. Ernest Gallant. These lectures were arranged by the Public Health Education Committee of the Medical Society of the Borough of the Bronx.

Women's Medical Association of New York City.—A stated meeting of this association will be held in the New York Academy of Medicine on Wednesday, March 19th, at 8:15 p. m. In addition to the presentation of pathological specimens and the exhibition of patients, the programme will include the following papers: Some Unusual Obstetrical Complications with Reports of Cases, by Dr. Frances Merriam Myers; Notes from Histories of Tuberculous Patients Seen in the Obstetrical Wards of the New York Infirmary for Women and Children, by Dr. Angenette Parry; Preliminary Study of the Paraffin Treatment of Perineal Wounds, by Dr. Caroline S. Finley. Dr. Augusta Vedin, Dr. Helen Baldwin, Dr. Marie L. Chard, and Dr. Augusta Rucker will participate in the discussion. Dr. Mathilda K. Wallin is president of the association and Dr. Esther L. Jefferis is corresponding secretary.

Personal.—Dr. George F. Butler, of Chicago, has been appointed general medical director of Mudlavia, Kramer, Ind.

Dr. Solomon Solis-Cohen has resigned as medical adviser to the Jewish Consumptive Institute in Philadelphia.

Dr. S. Weir Mitchell, of Philadelphia, was the guest of honor at the annual dinner of the Physicians' Club, of Chicago. He delivered an address on the Profession of Medicine in the War of the Rebellion.

Special Lectures at the American Medical College.—Dr. B. Merrill Ricketts, of Cincinnati, will deliver three lectures at the American Medical College of St. Louis, which is the medical department of the National University of Arts and Sciences, as follows: Thursday, March 20th, at 11 a. m.: Treatment of the Appendicular Stump (with lantern slides); Thursday, March 20th, at 4 p. m.: The Cecum as a Causative Factor in Rectal and Genitourinary Diseases (with lantern slides); Friday, March 21st, at 4 p. m.: Endotracheal Insufflation with Experiments on Dogs. Physicians and medical students are invited to attend these lectures.

Conference on Industrial Education for Children.—At a sectional meeting concerning crippled children, held in connection with this conference, in New York, on March 8th, the special needs of cripples were considered. Dr. Douglas C. McMurtrie presided at the meeting and spoke of the historical development of care for the deformed and the experience in connection with trade training both in the United States and abroad. Other speakers were Mr. Charles H. Burr, superintendent of the city hospital and country branch of the New York Orthopedic Hospital, who told of the lessening necessity for industrial education in the work of his institution, as the chief need for young children was primary education; Dr. Charles H. Jaeger, who discussed the industrial training provided for adult cripples at the Trade School of the Hospital of Hope; Miss Florence Sullivan, who spoke concerning the work at the trade school for crippled boys and girls maintained by the Brearley League, and Miss Evelyn Goldsmith, who emphasized the necessity of industrial training for the graduates of special classes for cripples in the public schools. An interesting discussion followed, and a resolution was adopted recommending that the section be continued annually.

Resolutions Relative to the Practice of Nursing Adopted by the Hospital Conference of the City of New York.—At a special meeting of the Hospital Conference of the City of New York, held at the Hospital for Ruptured and Crippled, Tuesday evening, February 18, 1913, for the purpose of considering the proposed amendment to the public health law (now known as Senate bill 943) relative to the practice of nursing, the following resolutions were adopted:

Resolved: First, that we, as a conference, disapprove of the proposed amendment.

Second, that as the training of nurses concerns not only associations of nurses, but also physicians, hospitals, and the public at large; we recommend that the legislature appoint a committee on nursing composed of representatives of the State Nursing Association, the medical profession, and hospital trustees.

Third, that we recommend specific, rather than general, laws on nursing matters, and that no new restrictions shall be placed upon training schools without the sanction of the legislature.

Fourth, that copies of these resolutions be sent to the board of regents, the commissioner of education, the various boards of trustees of the private and public hospitals of the State, and all the medical and nursing journals circulated in the State of New York.

Fifth, that a committee be appointed to represent this conference, and to present these resolutions at any hearing which may be granted by the legislature to consider the proposed amendment, and to take such measures as may be considered desirable for the furtherance of the purposes of these resolutions.

This act appears to have two principal objects. The first is to prohibit any person not registered by the Regents of the University of the State of New York, from "practising" as a nurse. There is no definition of what is meant by "practising as a nurse," nor any penalty for violation of the statute. It appears to prohibit any person from acting as a "nurse" for a child. In the next place, the act gives to the Board of Examiners of Nurses (who are nominees of the New York State Nurses' Association) the power, not only to examine and certify nurses, but also the power to hear charges against nurses and to recommend to the regents the revocation of their licenses. It seems clear that such large powers should not be granted. The Hospital Conference, therefore, strongly disapproves of the pending bill.

Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

January 2, 1913.

Rhachitis.—H. Ribbert says that although the etiology of rhachitis is not yet clear, in its final analysis a series of observations point to the fact that on account of improper nourishment anomalies of metabolism set in which bring on the disease. From these, toxic influences act upon the skeleton which microscopically are seen to be retrogressive changes in the cartilage cells. The disintegrating and cartilage dead cells take a yellow stain with Hämalaun, van Giesen, and orange stains.

Technic and Application of Intercricothyrotomy.—A. Denker recommends in cases of the most acute laryngeal stenosis, an incision directly on the upper border of the ring cartilage in a transverse direction (intercricothyrotomy) in order to restore breathing rapidly and surely. This is done by incisions with a double edged knife made in different lengths and breadths. The operation removes the danger of immediate death, but does not take the place of either intubation or tracheotomy. It has a practical application for the general practitioner.

Local Anesthesia in Reposition of Subcutaneous Fractures and Luxations.—H. Braun says that local anesthesia in the improved present stage, particularly in the plexus anesthesia of the upper extremity according to Kulenkampff, is well fitted for the treatment of fractures and luxations. Even a simple injection around the fragments or about the displaced joint elements with the injection at the same time of the articular cavities has given good results. The reposition usually takes place painlessly, and in a successful plexus anesthesia the relaxation of the muscles is more complete than in narcosis. The experiences with fractures of the leg have thus far not been very favorable; those for the thigh are meagre. A special description is given for anesthetizing in luxations of the thigh.

Treatment of Sciatica by Epidural Injections.—Läwen reports twelve cases of sciatica treated with a one per cent. novocaine-bicarbonate solution with excellent results in some cases, in one patient the improvement lasting two years. Where brilliant results were not obtained the affection was probably not a true sciatica. The latter, particularly sciatica of the roots, is the kind most amenable to this treatment.

Blood Picture in Smallpox and Cowpox.—Erlenmeyer found that Kämmerer's blood picture, a marked increase of the mononuclears which are in reality lymphocytes, was seen in two cases of smallpox, while in four, twelve year old vaccinated children, no change in the blood picture could be made out.

Differences in the Blood Serum in Paresis and Dementia præcox.—Benedek and Déak, after numerous experiments on rabbits, were able to show that the serum of paralytics is poorly supplied with hemolysin antigens, while that of patients suffering with dementia præcox is richly supplied. The erythrocytes of rabbits vaccinated with the serum of paralytics have a decreased resistance to

mercuric bichloride, the others an increased resistance.

Perirenal Hematoma Following Scarlet Fever.—Hering was unable to discover the cause, either by operation or at autopsy, of a fatal increasing retroperitoneal hemorrhage extending into the pelvis, coming on three weeks after the exanthemata of scarlet fever.

January 9, 1913.

Calcium Metastases and Calcium Gout.—Schmidt describes, and tries to account for the autopsy findings in a patient having calcification of the lungs, mucous membrane of the stomach, kidneys, the small vessels, the arteries of the pancreas and the uterus, and the heart muscles, in the absence of a diseased condition of the bones and the presence of marked chronic nephritis. The author is of the opinion that disturbances in calcium metabolism must be the underlying factor with which the nephritis in some unexplained way is intimately connected.

Typhoid Carriers.—Conradi designates those patients as primary carriers who have had a typhoid infection and still harbor the bacilli; and as secondary carriers those which have never had a recognized typhoid and yet harbor the bacilli. The first are the more dangerous to the community. The fact that typhoid is a local as well as a blood infection explains why five per cent. of the patients suffer chronically from infections of the bile ducts and infected metabolic foci in the kidneys. The uselessness of surgical therapy is evident. It remains to be seen whether chemotherapy will aid these cases. The author urges cleanliness and care as the only present means to prevent spreading the typhoid of the carriers.

Hypertension and Sugar in the Blood.—Port corroborates Weiland that nephritis with apoplexy, eclampsia, or uremia increases the sugar of the blood, which, however, lacks some further factor to produce glycosuria.

Influence of Salvarsan on the Hearing Apparatus.—Rimini, in treating eight cases at the beginning of the salvarsan era by injections, produced more or less severe auditory disturbances. These cannot be directly traced to the toxic action of the salvarsan, but are probably due to a lively reactionary inflammation of the latently luetic nerve. Therefore in applying salvarsan therapy the greatest caution is to be used in cases where the slightest defect in hearing is already present.

Nongonorrheal Ophthalmia neonatorum.—Credé and Hörder found in place of gonococci, which do not cause infection of the newborn as frequently as has been supposed, the presence of Gram positive diplococci, pneumococci, and bacteria coli. The inflammations caused by the pneumococci were particularly severe; but they, together with the inflammations caused by the other bacteria, are distinguished from the gonorrheal infections by the fact that the cornea remains intact.

Iodstarin and Iodine Preparations in the Treatment of Pulmonary Tuberculosis.—Perkik recommends the use of iodine and its preparations for treatment in cases of phthisis, even in those cases which are wholly free from lues. Iodstarin, a tasteless combination of iodine and a fatty acid

having no side actions (symptoms of iodine poisoning only when given in very large doses) is rapidly absorbed and slowly excreted by the system.

January 16, 1913.

Blood Circulation in Functioning and Atalectic Lung Tissue.—Bruns found that the rate of flow and the amount of blood present at any one given time in collapsed and atalectic lung tissue is less than in the normal inflated lung. This accounts for the fact that in collapse of one lung the blood of the whole body does not become markedly poor in oxygen or richer in carbon dioxide. Therefore in pneumothorax therapy for tuberculosis we cannot have hyperemic action as has been supposed.

Examination of the Tuberculous.—L. Rabinowitch found that in forty-five per cent. of all persons suffering from tuberculosis, bacilli were present in the bile. In a relatively large number of the cases, the bovine type was present. In some cases the human type was demonstrated in the body, which leads to the supposition that the various atypical bacilli forms are transmutation products. This may explain why in children the bovine type is frequently met with, while in tuberculous adults the human form predominates. In the infected body a change seems to take place, but no mixed infection is present. In adult and child the excretion of tubercle bacilli with the feces points to the presence of the tubercle in the bile passages. Animals of this type show in the majority of cases a positive tuberculin reaction. Milk of such cows may be infectious.

Sexual Psychogenic Cardiac Neuroses (Phrenocardia).—Behrens asserts that phrenocardia, almost always a concomitant symptom of general nervousness, neurasthenia, or hysteria is to be regarded as a psychoneurosis conditioned by a sexual moment whose general symptoms are intense pain in the region of the apex, catching of the breath, and intermittent palpitation precipitated by the least stimulus. These symptoms may be masked by those of hysteria. The patients in the vast majority of the cases are women of sexually ripe age. Objectively the findings usually are normal or almost so. A form of spastic obstipation may be present. Sudden changes in the condition of the patient are noteworthy. The manifestations of this condition may occur in crises.

Causal and Symptomatic Treatment of Gonorrheal Processes in the Male; the Original Menzer Gonococcus Vaccine.—Erlacher believes in the efficacy of Menzer's gonococcus serum in the treatment of acute and chronic gonorrheal arthritis and also in a series of specific complications. Twice in acute gonorrheal sepsis results were satisfactory. From five to twenty-eight million gonococci were injected in single doses. It can also be employed for diagnostic purposes. Notwithstanding a local reaction, there was no rise in temperature or any other side action.

January 23, 1913.

Experiences with Mesbé.—O. Roepke says that mesbé, a new remedy advocated in pulmonary and laryngeal tuberculosis, an extract made from an American plant, is of unknown composition and of unknown therapeutic action. Its relation to tuberculosis is arbitrary. It is not a cure. Mesbé

inhalations and drinking cures have been found worthless. The local application of mesbé in laryngeal tuberculosis produces no improvement and often causes objective and subjective unpleasant symptoms. Mesbé cures, notwithstanding reports to the contrary, are worthless in sanatoria and for the treatment of ambulatory patients.

Congenital Family Icterus.—E. Maliwa asserts that this is primarily a blood disease recognizable by anemia and typical changes in the erythrocytes. These changes are accompanied by a decreased resistance and the appearance of various staining elements. The icterus is pleochroic, the splenic enlargement spodogenous.

Increased Danger of Hemorrhage in Operating in Congenital Narrowness of the Aortic System.—Melchior urges the utmost caution in operating in these cases when the diagnosis can be made previous to operation and where it is not of vital importance to operate.

January 30, 1913.

Treatment of Furunculosis and Sycosis coccigenes with the Staphylococcic Vaccine Opsonogen.—L. Zweig speaks highly of this vaccine, having proved to his entire satisfaction that it produces excellent results in furunculosis and sycosis. In chronic cases of the latter disease he found it of great value. The results, of course, are not so surprisingly rapid as in furunculosis.

Clinical Tests with Isolated Substances of the Hypophysis.—S. Herzberg avers that hypophysin intensifies slow irregular uterine contractions. It does not produce contractions of long duration. It is harmless for mother and child, effective in any stage of labor without increasing post partum hemorrhage. It possesses all the advantages of the organic extracts of the hypophysis and is free from unpleasant side effects.

PARIS MÉDICAL.

February 22, 1913.

Cancer of Esophagus Treated With Radium.—Guisez had noted that radium obtained its best effects in cutaneous cancer and used it in esophageal cancer on account of the analogy between this and the cutaneous varieties, from both structural and evolutionary standpoints. Since Guisez has been able to use from ten to twelve cgm., he believes he has obtained genuine curative effects. He treated thirty-five patients and had at least palliative results in all; in about one third results have been good enough to permit normal feeding. Three cases, of which details are given, seem to be permanently cured. His apparatus is simple, consisting of tubes of radium surrounded by silver screens, four tenths of a millimetre in thickness and fixed in an olivary sound No. 16 or 18. He begins with one or two cgm., and as soon as toleration is established, raises the dose to five or ten cgm. Applications are made during séances lasting four or five hours, every second day; a minimum of thirty hours is demanded, in some cases sixty. Platinum may replace the silver screen, and the rays also traverse the one millimetre thickness of the gum sound. An enormous secretion of fetid saliva is an immediate result, attributable to the radium, for a plain sound does not produce this symptom. Augmentation of

calibre in the esophageal stenosis is almost immediate. A fact worth noting was that microscopical examination of the growths after partial treatment showed marked change in their nature, evidence of malignance being lacking, although undoubtedly present at the first examination.

X Rays in Graves's Disease.—Perdrizet, noting in the literature the good results obtained by this method in Graves's disease, advises the use of tubes of medium hardness through which a current of half an ampère is passed, the distance between the focus and the skin being about sixteen mm. The skin should be protected by a layer of leather, six mm. in thickness. A treatment lasting twenty minutes once a week suffices at first, care being taken to irradiate both sides of the gland. Subsequently the treatments need be given only every two weeks, then every three weeks, etc. Erythema is a signal to interrupt the treatment for a time. Results have been most encouraging in the disappearance of nervousness, tachycardia, dyspnea, and trembling, and Perdrizet expresses the hope that they will be permanent.

PRESSE MÉDICALE.

February 8, 1913.

Bradycardia in Lead Colic.—C. Lian and E. Marcorelles recall the fact that Tanquerel and Planches, among 1,179 patients suffering from lead colic, had observed a heart rate of twenty to sixty a minute in no less than 678 cases. The cause of this bradycardia was investigated by the authors, who employed the newer graphic methods and the atropine test. The condition was found to be a true bradycardia in the sense that there are no extrasystoles. The whole heart is involved, i. e., there is no dissociation between the auricular and ventricular beats, and each ventricular beat is preceded by only a single auricular beat. The rate is increased by atropine. The bradycardia depends neither upon the arterial hypertension usually present, nor upon the abdominal pain, but appears to be due to the direct action of the poison either upon the trunk of the vagus nerve or its terminals in the cardiac sinus.

Treatment of Lymphorrhagia.—P. Sikora discusses the measures available for the arrest of lymph extravasation under various conditions. Traumatic lymphorrhagia, even when extensive, is generally recovered from after simple procedures such as packing, pressure, and cauterization of fistulæ. In exceptional cases, ligation of the injured lymphatic vessel is required. In lymphorrhagia of inflammatory or neoplastic origin, treatment of the cause is especially indicated.

Instrument Facilitating Suture of Vessels.—A. Leitao da Cunha describes a device consisting of a triangle of flexible steel each side of which is about two cm. long and five mm. wide and bears at its middle a projection, two cm. long, provided at its extremity with a steel button. One angle of the triangle is open, so that the device may be removed from the vessel after the suturing is completed. The object of the device is to hold the vessel walls apart in triangular fashion, to facilitate suturing. Three equidistant loops are passed through the ends of both of the vessels to be united and fastened, respectively, to the three buttons on the device. Vessel suturing can thus be done without an assistant.

SEMAINE MÉDICALE.

February 12, 1913.

Precoxal Osteomata.—F. Lejars discusses the pathology and operative treatment of newly formed bony masses anterior to the hip joint, generally preceded by trauma, and sometimes apt to be mistaken for osseous tumors of the femur or pelvis. He recognizes three types: 1. Osteomata derived from the bony skeleton itself, and the following fracture of the femoral neck, trochanter, pubis, etc.; 2, myosteomata, derived from the psoas, rectus femoris, adductors, etc., and which, after extending to the points of attachment of tendons, ultimately adhere to the bones; 3, myosteomata, ensconced in the muscles and devoid of secondary attachments. The author reports five cases, two of which were of the last named variety, and points out that in many instances an interval of two or more years elapses between the traumatism and the appearance of the mass. The treatment consists of operative removal of the bony growth in cases where it gives rise to increasing pain and functional disability. The excision should be as complete as possible, in order both to restore function to the joint and prevent further ossification from residual osteophytes. In cases of old fracture of the femoral neck with marked deformity, excision of the joint will, in some cases, have to be considered. This was done in one of the author's patients, and yielded good functional results.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

January, 1913.

Prognosis and Reduction of Dislocation at the Hip.—Roux, reviewing the ultimate results observed in twenty-one cases of hip luxation, some reduced by ordinary methods soon after the accident, others treated later by open operation, concludes that the late prognosis in these cases is not entirely favorable. Although occasionally the subsequent trouble may arise from osseous abnormalities existing before or as the result of the accident, and which might have been avoided by routine use of the x rays in these cases, the disturbance is usually due to imperfect restoration of the soft parts surrounding the joint. In adults, one should always be apprehensive of a posttraumatic deforming arthritis, which may appear at a long interval after the accident. The best way of preventing this and other untoward results is to keep all these patients under treatment, after the dislocation, for a longer time than has hitherto been the custom. In reducing hip luxations, Roux advises the following manœuvre, which permits of easy reduction, even where the patient's limb is unusually massive: With the patient anesthetized and lying on a mattress, the thigh is flexed to liberate the femoral head, and the operator's knee placed under that of the patient. Holding the patient's leg below the knee and at the ankle, the operator then applies force to it just as a laborer would lift a heavy shovelful of earth.

Pseudodiphtheria Bacilli in Otitis media.—Reh and Méroz found pseudodiphtheria organisms in the pus of over one half of the fifteen cases studied by them. While themselves not a factor in the causation of middle ear disease, they were always

associated with pathogenic cocci. Their significance resides in that they may be confounded with true diphtheria bacilli in otitis induced by the latter, which form of otitis may constitute the sole clinical manifestation of diphtheria. The only fairly rapid procedure for distinguishing the two bacterial types is inoculation of guineapigs.

Tumor of the Heart.—C. Horneffer and P. Gautier summarize three cases already reported by Mérog and give in detail the history of a case of their own, in which the symptomatology was unusually clearly cut, owing to the absence of all complicating factors. In each of the four cases, the growth involved the left auricle. The special features by which such cases may be recognized during life was stated as follows: The dyspnea is out of proportion with the apparent degree of cardiac involvement, and shows paroxysmal exacerbations due to momentary blocking of one of the orifices. Brief syncopal attacks, with or without loss of consciousness, are to be similarly explained. Rapid loss of weight and strength is of diagnostic value. The area of cardiac dullness may be considerably enlarged, and a systolic murmur or reduplication of the second sound be noted, according to the situation of the growth. Irregularity of rhythm also appears to be frequent, and is but temporarily, or not at all, overcome by heart tonics. Especially distinctive, however, is the marked variability and disconcerting vagueness of the signs present. Multiple embolism, lung infarction, and sudden, unexpected exitus are also characteristic. An esophageal pulse tracing taken in the author's case, when compared with the jugular tracing, showed that the auricles were not contracting equally.

Examination of Sputum for Tubercle Bacilli.—G. Kaplansky compared the Ziehl-Neelsen, Uhlenhuth (antiformin), Spengler, and Much methods of examining the sputum in a series of 112 cases of lung tuberculosis. In 225 additional cases the first and second of these methods were alone compared. The author's conclusion is that the Ziehl-Neelsen procedure is at once the simplest, most rapid, and most exact of all methods. The Much method sometimes reveals a greater number of tubercle bacilli than the others, but in no case where the findings were negative by the Ziehl method were they positive with the former.

ROUSSKY VRATCH

January 5, 1913.

The Effect of Extracts from Goitres on Blood Pressure and the Isolated Heart.—A. A. Grube found that extracts from toxic goitre cause a lowering of blood pressure, and, in the majority of cases, an increase in the pulse rate with a reduction of its volume. The lowering of the blood pressure was caused by the lowering of the tonus and dilatation of the peripheral bloodvessels.

Pathological Anatomy of Some Internal Organs in Basedow's Disease.—A. N. Chrustaleff observed the following morbid changes in Basedow's disease: 1. Retrogressive changes and destruction of the specific elements of the ovaries; 2, marked hyperemia; 3, marked increase of connective tissue; 4, formation of cysts. The uterus and mammary glands undergo atrophy of the specific

elements, which are replaced by fibrous connective tissue. There is also hyperplasia of the lymphatic system, the spleen, and the lymphatic glands. In the adrenals there is lessening of the cortical layer and hyperemia. The medulla is hyperemic and filled with eosinophilic granules. The heart, liver, and kidneys show evidence of marked parenchymatous degeneration. The alimentary canal is in a condition of follicular catarrh.

Preservation of Anatomical Preparations and Bodies in Hermetically Sealed Containers without Fluid.—I. M. Iosifom describes a method of preserving dry specimens and whole bodies in hermetically sealed boxes. The cadavers are previously injected with a solution of denatured alcohol, 5,000 c. c.; formalin, 400 c. c.; carbolic acid crystals, 200 grammes; and glycerin, 500 c. c.

BRITISH MEDICAL JOURNAL.

February 22, 1913.

Influence of Septic Infection in the Causation of Eye Disease.—B. T. Lang calls attention to the fact that in the majority of cases of scleritis, keratitis, iritis, cyclitis, and choroiditis the cause of the inflammation is obscure. Since physical injury is excluded, these cases have come to be regarded as due to the chemical effects of bacteria or their toxins. These bacteria or toxins must reach the eye through the blood stream. Lang states that direct evidence of the presence of bacteria in such cases is not usually obtainable and that, therefore, indirect evidence forms the basis of his opinion that many of these lesions of the eye depend for their origin upon the presence of some septic focus in the body, from which the exciting substance reaches the eye by the circulation. He reports abbreviated accounts of several cases illustrating his contention, and he draws his deductions from a total of 176 cases. In his experience the septic foci found lie in one of three situations: 1. Along the respiratory or alimentary tracts; 2, along the genitourinary tract; or, 3, on the skin or in a sinus leading from it. In many of the cases in this series cure of the eye inflammation was brought about solely by treatment directed to the removal of the septic focus or its sterilization. Lang suggests that senility and myopia do not cause choroiditis, as is so frequently stated, but that in each condition there is a reduced resistance of the choroidal tissues which renders them favorable sites for infection.

Vaccine Therapy in Chronic Bronchitis.—H. T. Gillett used autogenous vaccines in the treatment of eight cases of bronchitis, some acute, others chronic. The sputum is collected as free as possible from mouth contamination by cleansing of the teeth with sterile water and subsequent washing of the mouth and gargling of the throat with plain sterile water. The next sputum is to be expectorated into a previously boiled bottle. A little of the sputum is then washed and shaken up with sterile saline and one or two loopfuls are sown on agar, or other solid medium. From the growth of fifteen to thirty-six hours the vaccine is made up. The dose is regulated according to the response of the patient and is not controlled by opsonic tests. It is attempted, at each injection, to cause a slight reaction. All of the cases so far treated by Gillett have responded favorably.

Supraclavicular Anesthetization of the Brachial Plexus.—William F. Neil and Frederick Crooks believe this method to be convenient, free from danger, and one which permits of the performance of severe operations on the arm without pain of shock. They state that to obtain satisfactory anesthesia one should adhere strictly to the following points: 1. Definite paresthesia in the arm or hand must be obtained before any solution is injected. This is an indication that the needle has reached the region of the plexus. 2. The injection should consist of twenty c. c. of a two per cent. solution of novocain. 3. Usually from five to fifteen minutes is time enough to allow for sufficient anesthesia to develop, but at times it may be necessary to wait for as much as thirty minutes. The needle should be fine and should be inserted to the desired spot while detached from the syringe, in order to discover whether a vein has been entered. The solution must not be injected directly into a vein. To find the plexus the patient should be seated with his head turned toward the opposite side from that to be injected. The position of the subclavian artery is to be determined by palpation, and the needle is to be inserted just external to the artery. The needle should be four to five cm. long. It has been objected that there is danger of puncture of the subclavian artery. This is not at all likely, and it has been proved that puncture of this vessel with a fine needle, such as is used, produces no ill effects. If the instructions are not followed and the needle is inserted beyond the first rib, it is possible to puncture the pleura and inject the solution into the pleural cavity. Paralysis of the nerve trunks of the arm is possible, but it has been seen in only one recorded case and in this it was a temporary condition. Out of forty cases the authors report only four failures of the method to produce sufficient anesthesia.

LANCET.

February 22, 1913.

Transmission to Monkeys of Virus Obtained from English Cases of Poliomyelitis.—James McIntosh and Hubert Turnbull have succeeded in infecting monkeys with poliomyelitis from two cases of the sporadic disease. Both of the strains thus obtained have been transmitted in series through monkeys. These are the first recorded successful transmissions of the disease from man to monkeys in England in which the virus has been obtained from English cases of the disease. The authors suggest that this previous failure to infect monkeys was due to the fact that the infective agent is rather avirulent, as it is seen in England where poliomyelitis is only slightly epidemic. It has been observed that in the neighborhood of the London Hospital, whence the two original cases arose, there has gradually developed, in the last few years, a small and mild epidemic of poliomyelitis, arising from one or two sporadic cases. The authors suggest that in view of the apparent avirulence of the virus in the sporadic cases these cases are found only in those individuals who have a peculiar susceptibility to the disease, while an epidemic of the disease results only when the activity of the virus has become increased, either by a series of passages

through susceptible individuals, or through some unknown cause.

Ptomaine Producing Bacteria in the Human Intestinal Flora.—D. M. Bertrand and A. Berthelot, by means of a special culture medium, succeeded in isolating from the intestinal tract of man an organism which is capable of producing ptomaine. By its morphology and cultural characteristics the organism is closely related to the bacillus of Friedlaender, and *Bacillus lactis aerogenes*. Its biochemical action on aminoacids is much more marked than is that of either of the two organisms to which it is similar. Its affinity for organic substances containing nitrogen is so special that it can be termed *Bacillus aminophilus intestinalis*. The ptomaine produced by this organism has been isolated and found to be B-imidazoethylamine, and is identical with that alkaloid as isolated from ergot by Barger and Dale. In addition to this bacillus, the authors have succeeded in obtaining from the human feces two others, different in some respects, but which can produce the same ptomaine by the same process. A point of particular interest is that it is always impossible to get a growth of one of these organisms from the feces of persons in very good health.

Therapeutic Action of Splenic Extract.—H. R. Harrower gives the following summary of the actions of splenic extract, as a result of the analysis of nearly fifty communications on the subject. Its value is due presumably to certain splenic hormones, on which, in a degree, the following phenomena are dependent: 1. Leucocytosis, phagocytosis, and possibly hemoglobin formation and iron metabolism; 2, tryptic digestion, thus directly increasing assimilation and nutrition; 3, intestinal digestion and the production of enterokinase; 4, the process of healing, both as regards the cessation of hemorrhage and the production of rapid connective tissue formation; 5, increase in the functions of the spleen itself. These actions are all held to be the grounds for the beneficial effects of splenic extract in pulmonary tuberculosis, and to them there is to be added the fact that the extract exerts an antagonism to the tubercle bacillus by an influence on its culture medium in the body, due to the production of a colloidal substance.

PRACTITIONER.

February, 1913.

Septic Infection of Joints.—Arthur E. Barker says that among the many nontraumatic ways in which joints may be infected through the blood stream, less attention has been given to the possible entrance of bacteria from the gums than the subject deserves. All are familiar with synovitis following gonorrhea or other forms of septic catarrh of the urethra and vagina, and with the arthritis of pyemia and of the acute fevers, such as scarlatina, measles, typhoid fever, and influenza. Pneumococcal infections of joints are also recognized, though not always definitely traceable to an attack of pneumonia. In many cases it may be difficult to trace the joint trouble, and it behooves us to examine closely into the state of the teeth and gums in every attack of synovial inflammation of nontraumatic origin. Even when synovitis follows a blow, a strain, or another form of nonpenetrating injury,

we should examine the teeth, mouth, and pharynx for possible portals of infection, as the injury may be only the factor determining where a previous infection shall manifest itself. He reports four cases which he thinks may be taken as typical of hemogenic infections of joints. In some ways they contrast markedly with septic processes originating in joints as the result of direct traumatic inoculation. Although the fever is generally high at first, it is not persistently so; the local temperature is not so high, nor is the local redness so marked, as a rule. In the traumatic infections the general aspect of the patient is worse; he looks ill, and the pain is more severe. These differences seem to depend on the way in which the bacteria reach the joint. In the traumatic infections there is no mitigation of the poison; in the hemogenic infection the organisms have been in contact with living cells and fluids hostile to them, their powers of growth have been inhibited more or less, and their virulence is reduced. When they reach the joint they may still produce an inflammation, but they have a hard struggle. It is well to remember the three ways of possible infection when considering any particular case, the hemogenic, the direct traumatic, and the indirect traumatic, for both treatment and prognosis are considerably influenced thereby.

Rheumatism in Childhood.—F. J. Poynton says that rheumatism in childhood gives no definite type of fever, and may not even be febrile, but is of the opinion that it is a diplococcal disease which may be acute or chronic, febrile or afebrile, closely resembling tuberculosis in this respect. For this reason he wishes that we would discard as inaccurate the terms rheumatic fever and acute rheumatism. He thinks the infection due to a diplococcus belonging to the group of streptococci, placed between the pneumococcal strains and the pyogenic streptococci. As to etiology, he considers the disease to be greatly dependent on variable climate; sometimes it becomes almost epidemic; heredity is an important factor; females are affected more commonly than males. Infection takes place through the tonsils, and the infection may affect every tissue in the body. Postscarlatinal rheumatism he holds to be true rheumatism, the infection entering the system at the time of the scarlatinal sore throat. In the same way is explained rheumatism following measles and diphtheria. The diplococcus is minute and only feebly Gram positive. Treatment includes better housing and general surroundings and careful medical supervision. The question of enucleation of the tonsils is discussed at some length. Acute rheumatism may follow the operation, and if the child has had one attack the operation may not prevent another, but it diminishes the likelihood of future attacks. Many rheumatic children have sore throats, but not enlarged tonsils. Such throats need careful supervision, for deep foci of disease may remain and prove a source of danger.

Significance of Some Common Symptoms in Childhood.—C. V. Kebbell studies in succession cough, headache, sore throat, pyrexia, wasting, abdominal pain, laryngeal stridor, cerebral symptoms, convulsions, and vomiting. He emphasizes the importance of a thorough examination in all cases of

illness in childhood, and the assistance to be gained from a careful inspection of the child, which, if not actually suggesting the disease, will often warn us of the severity of the case or that the child is really ill, in a doubtful case, and lead us to take a cautious view of the matter, rather than dismiss it as some trivial complaint. Frequently some disease, as of the heart or lungs, is discovered, though not suspected by the parents.

Bow Legs in Small Children.—Paul B. Roth divides these cases into the mild and the severe. The former are curable by splints or other apparatus, the latter require division of the bones. In mild cases a suitable splint should be applied and worn by the child while walking about. It should extend from the bottom of the shoe heel to the line of the knee joint, be applied to the inside of the leg and ankle over the sock and shoe, and be bandaged on firmly. The bandage should come well down on the outside and obtain a purchase from below the external malleolus. The splint is to be applied in the morning and removed at night. It should be worn for from three to twelve months and discarded as soon as the legs are quite straight. Severe cases are treated either by osteotomy of the tibia and fracture of the fibula, or by manual osteoclasis of both bones, in which the limb is grasped by both hands of the operator and broken by leverage over a suitable fulcrum. After a trial of both methods, Roth discarded osteotomy in favor of osteoclasis, the technic of which he describes at considerable length. In both classes of cases an antirrachitic diet is maintained as long as the patient is under observation.

BOSTON MEDICAL AND SURGICAL JOURNAL.

February 27, 1913.

Early Recognition of Tumors of the Bladder.

—Arthur L. Chute believes that if we are to get better results in our treatment of bladder tumors we must see them earlier, and to do this we must impress upon the medical public two points: First, that any hematuria may be a sign of very serious bladder disease and should be looked upon with suspicion until its source and cause are clearly demonstrated; second, that the idea of the benign nature of bladder tumors should be combated, as a very large proportion are malignant from the start, in that they infiltrate the bladder wall and lead to metastases. Some that are apparently benign in the beginning tend later to infiltrate, while some that show no tendency to infiltrate tend to multiply and destroy life by hemorrhage, sepsis, and interference with the renal function. Until our knowledge of these tumors is greater we take too great a risk in assuming that any given bladder tumor is clinically benign, though probably a few are.

Value of High Frequency Cauterization in the Treatment of Vesical Papillomata.—Horace Binney says that high frequency cauterization is an important addition to our means of attacking vesical papillomata of the noninfiltrating type. It is free from complications or danger if properly applied, with the exception of hemorrhage, which appear to be rarely serious or troublesome. It avoids the danger of multiple recurrences, and the results are encouraging, though the cases are too recent for proof of cure.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

March 1, 1913.

Disappearance of Sugar after the Removal of Tumors in Diabetes.—Morris Manges reports two cases of prostatectomy in diabetics where the sugar disappeared, permanently in one, after the operation, recalling similar results in two other cases reported by Miller and Joslin. In all these cases the diabetes was severe, with marked acidosis. In the present state of our knowledge of the etiology of diabetes the writer avers that it is not easy to explain the disappearance of sugar after the removal of tumors, as the cases are far too few in number. He suggests that it is plausible that the operation removes some nervous or toxic irritant which in some unknown way disturbed the carbohydrate metabolism. A more important phase to him is the prognosis of operation on severe diabetes considered in the light of the four reported cases, which he considers far better than is generally believed, and which would lead us to advise operation in diabetes with tumors in the hope of beneficial effects on the diabetes itself. In the much feared acidosis he would differentiate the dangerous cases (in which the diacetic acid and oxybutyric acid tests are positive) from those in which there is no danger, no matter how intense the acetone reaction may be, if only the diacetic and oxybutyric acid tests are negative. In the former case prognosis should be guarded, and definite information can be furnished by the physiological chemist as to whether coma is impending or not, by determining the relations of the ammonia nitrogen to the total nitrogen excretion of the urine. When this quotient is low and within the normal limits, the immediate prognosis is good, and the danger from grave acidosis or coma after operation is not sufficient to prevent any necessary operation being done.

MEDICAL RECORD.

March 1, 1913.

Cardiospasm and Idiopathic Dilatation of the Esophagus.—Max Einhorn described the well known symptomatology and diagnosis of these conditions in a previous paper. Neither cardiospasm nor idiopathic dilatation of the esophagus is absent if Meltzer's swallowing sound is found present either immediately or seven seconds after deglutition. Cardiospasm is frequently present if it is considerably delayed from twelve to twenty seconds after swallowing water, or if it is now delayed, and now absent. There is, as a rule, idiopathic dilatation of the esophagus if the sign is always absent, and bougies (43-48 F.) enter the stomach. Radiographs will confirm the diagnosis, and are valuable as aids. Mild cases of cardiospasm yield to a nerve sedative and also after the passage of larger bougies (43-54 F.) into the stomach. In severer cases of cardiospasm and in all cases of idiopathic dilatation of the esophagus, forcible stretching of the cardiac by means of a cardiodilator (up to size 8 to 10 cm. circumference) is necessary. The latter procedure has become a favorite in his hands on account of its excellent results.

Tibial Bone Transplantation in the Postoperative Mastoid Wound.—Milton J. Ballin urges the

importance of several precautions. The post-operative mastoid wound must be free from purulent secretion and covered with healthy granulations. The wound must not be curetted or bathed with antiseptic solutions. Transplantation is always a secondary operation, to be done a week, ten days, or even longer (depending on the condition of the mastoid cavity) after the primary operation. Autogenous transplantation must be done, the bone flap to be taken from the patient's own tibia and always with its living periosteum attached. Injury of the periosteum must be avoided if the ultimate result is to be favorable, and in making the bone flap it must be handled as little as possible in order that injury and infection be avoided. This method should be used only in those cases in which a good vascular bed for the transplant is present, as a good blood supply is absolutely essential to success. The writer does not advocate this method as a routine, maintaining that it is of value only where there is a healthy granulating wound, producing a better cosmetic effect and curtailing the period of healing, and moreover doing away with the tedious packing and repacking of the wound required by the open method. General anesthesia is necessary for this operation, and exposure of the sinus and dura is not a contraindication to a bone transplantation. There is no danger of a retention of pus beneath the transplanted flap with a secondary infection of the surrounding structures, for union will not take place if there is suppuration beneath, and the bone will be exfoliated within a very short time, in which case the usual open method of treating the wound must be substituted.

Jung's Modification of the Freudian Theory of the Neuroses.—S. P. Goodhart explains that psychoanalysis has not a destructive, purely analytical purpose, but is rather constructive in an effort to synthesize the natural forces of the individual, leading him to find himself; to guide him into a path which will furnish a natural outlet for his creative ability, energy, or libido. It is an educational endeavor to upbuild, all which tends to develop the best within the individual, a scientific opposing force which rationally meets the demand that has given rise to the baneful influence of the various cults, isms, and all the demoralizing institutions of mental malpractice.

Warming Anesthetic Vapors Neither Useless nor Fallacious.—Raymond C. Coburn demonstrates that the practice of warming anesthetic vapors serves the best interests of the patient, standing the test of the most searching examination. The writer has searched official hospital records, clinical reports covering hundreds of cases, clinical reports which show a marked conservation of the patient's vitality when the anesthetic vapors are administered warmed, and, furthermore, that this is conducive to ultimate recovery.

Luetin Skin Test in the Diagnosis of Syphilis.—A. G. Rytina concludes that the luetin is entirely harmless and that it is specific. The technic, already comparatively easy, could be simplified by dispensing the full dose in sealed ampoules. A little practice and experience is necessary to make the application properly and correctly to interpret the

mild form of positive reaction. It is mostly negative in primary and secondary untreated cases, but where previous treatment has been received a large proportion of positive reactions appear. It is practically 100 per cent. positive in congenital, latent, and tertiary syphilis, and positive in a large percentage of parasyphilitic cases. This test is less constant than the Wassermann reaction in primary and secondary syphilis, but possesses greater value as a diagnostic agent than the latter in tertiary, latent, and congenital cases and parasyphilis. Moreover, it has greater prognostic significance than the Wassermann test in determining when the cure of syphilis is complete.

Occupation as a Therapeutic Measure.—W. R. Dunton, Jr., points to the fact that although occupation as a remedial agent has been used in the treatment of mental cases for many years, in one asylum, as far back as 1830, its use has been much extended of late, so that a great many hospitals for mental diseases have resident or visiting teachers who give special courses in various forms of handicraft and also give individual instruction when desirable. The patient's individual taste and the exigency of the case naturally determine the best form of occupation, but string work, paper work, whittling, offer many possibilities in the way of interesting the patient. String work includes various forms of weaving, and patients, though bedfast, can manage the small frames, such as are used by small children. Hints as to varied occupations may be obtained for the asking at stores where kindergarten supplies are sold or by consulting some handicraft teacher.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

February, 1913.

Application of Iodine to the External and Internal Generative Organs of Women in the Treatment of Infections and Preparation for Surgical Operations.—J. W. Bovee calls attention to the well known antiseptic properties of iodine and recommends the technic as given by Grossich, in which emphasis is laid on the necessity of having the skin thoroughly dry. The disadvantages of the local application are the frequent and oftentimes severe dermatitis, owing to the use of too strong a solution, and to the fluid running in streams and coalescing. The alcohol then evaporates leaving deposits of iodine crystals. After much experimental work the author found that a 3.5 per cent. solution of iodine crystals in ninety-five per cent. alcohol was the weakest absolutely reliable preparation. Bovee recommends its use in the following conditions: 1. Acute infections of the vulva, vagina, urethra, and the whole of the endometrium; 2, acute peritoneal infections with proper limitations; 3, chronic conditions following infections of these structures and of the tubes, ovaries, and pelvic peritoneum; 4, in pelvic surgery requiring examinations, manipulations, or operations on or through the vagina; 5, in such procedures as require opening the cervical canal or uterine cavity from either the vaginal or peritoneal side; 6, as a routine method of preparation of the field of opera-

tion on all these structures, as well as the rectum. By doing away with the extensive scrubbing of the patient much time is saved, it having been determined that iodine requires a maximum of two minutes to prepare the field.

The Infant Pulmotor; an Apparatus for Artificial Respiration of Asphyxiated Newly Born Infants.—J. C. Edgar gives a brief but lucid explanation of the structure and use of the Draegen adult pulmotor as modified and reconstructed so as to be applicable to the infant, the chief change being that by the aid of a certain mechanism controlled by hand, the respirations can be so timed that a given number in a minute may be obtained. Also, what is important in asphyxia neonatorum, that the inspiration or expiration of the machine may be timed to coincide with the corresponding abortive attempt on the part of the newly born infant.

ANNALS OF SURGERY

January, 1913.

Endotracheal Insufflation Anesthesia.—Cotton and Boothby aver that endotracheal insufflation respiration is the only artificial method that absolutely provides for a sufficient aeration of the lungs, regardless of the respiratory movements of the patient, and that properly administered and safeguarded, it can be rendered devoid of intrinsic danger. As a consequence, they believe, anesthesia by this method is indicated whenever the operation is about to interfere in any way with the ability of the patient voluntarily to respire, and therefore it ought to be used in all endothoracic work and in extensive operations about the head, neck, and mouth. Of the various anesthetics to be used with this method, ether with air, preferably supplied with a foot pump, is the most applicable for general use; however, nitrous oxide oxygen with minimal quantities of ether may occasionally be the anesthetic of choice. To prevent deaths from emphysema, no matter what form of apparatus is used, it must be provided with a safety valve by means of which the endothoracic pressure cannot exceed fifteen mm. Hg.

Anesthetic Effects of Intravenous Injection of Paraldehyde.—Noel and Souttar feel that this drug has a future in both medicine and surgery. In minor surgery the patient passes through a short period of anesthesia into an easy and natural sleep. They mix from five to fifteen c. c. of paraldehyde with an equal amount of ether and dissolve the mixture in 150 c. c. of cold one per cent. salt solution. This is given after the method of a salvarsan injection. In five seconds the patient tastes paraldehyde; in ten seconds it can be detected on the breath; in forty seconds unconsciousness is complete; in ninety seconds the corneal reflex is absent and anesthesia is complete. In a case where six teeth were removed under ten c. c. each of paraldehyde and ether the patient was conscious in twenty minutes and had entirely recovered in half an hour.

Splenectomy for Traumatic Rupture.—A. M. Fauntleroy comments on the remarkable features of his case: First, the comparatively small hemorrhage for a complete transverse rupture, which he

explains by the marked perisplenitis; and, secondly, the peculiar pain in the left shoulder, which symptom the author suggests may be a pathognomonic sign. The pain disappeared after operation.

Spontaneous Rupture of the Malarial Spleen.—L. Noland and F. C. Watson say that in the clinical and autopsy records of approximately 30,000 cases of malaria admitted to the wards of the Colon Hospital during the past eight years, they have only found three instances of spontaneous rupture. They draw the following conclusions: Spontaneous rupture of the malarial spleen occurs in rare instances; the spleen does not necessarily have to undergo a great degree of enlargement for spontaneous rupture to occur; very deep palpation or forcible percussion of the enlarged malarial spleen should be avoided; exploratory puncture of the spleen for diagnostic reasons is not without danger; the treatment is early tamponade or splenectomy.

Use of a Murphy Button to Effect Duodeno-jejunoscopy after Gastrojejunostomy.—W. Bartlett successfully copes with the vicious circle following gastroenterostomy by the following method: After exposing the stomach, an incision is made in the anterior wall of this structure, allowing access to the gastroenterostomy opening in the posterior wall. With a hysterectomy clamp, one half of a Murphy button is introduced through the opening in the posterior wall into the duodenum, then the other half of the button is introduced into the jejunum. Two small incisions are now made in the intestinal walls, exposing the necks of the buttons. Then the two portions of the bowel contiguous to the gastroenterostomy opening in which the halves of the Murphy button have been placed are brought together and a short circuit is established by telescoping the two halves of the button.

JOURNAL OF INFECTIOUS DISEASES.

January, 1913.

General Gonococcus Infection in a Male Child without Evidence of Urethritis.—M. Nicoll, Jr., and M. A. Wilson report a case of arthritis in a boy, two and one half years old, from which gonococci were recovered. There had never been the slightest evidence of urethritis, as shown by discharge or difficulty in urination, during the patient's stay in the hospital, nor had the parents noted any such symptoms before his admission. A number of urethral cultures were made, from two of which were recovered colonies of Gram negative cocci morphologically identical with gonococci.

Origin and Action of Hemolytic Complement.—G. F. Dick states that the results of his investigations indicate that hemolytic complement is a proteolytic ferment which is either found in the liver or dependent upon liver activity for its presence in the blood.

SURGERY, GYNECOLOGY, AND OBSTETRICS.

January, 1913.

Etiology, Pathology, and Treatment of Ovarian Cysts in Relation to Child Bearing, with Special Reference to Hemorrhage into the Cysts.—W. C. Jones says that the tendency of ovarian tumors is almost always to increase in size more or

less and also, sooner or later, to undergo torsion, hemorrhage, gangrene, infection, or malignant degeneration. Hence in general, these cysts should be removed as soon as possible after they are discovered. One should be particularly careful not to let a woman pass into puerperium without first ridding her of the cyst. Most clinicians maintain that an ovarian tumor should be removed as soon as it is found. As to the choice of treatment, there usually is no room for doubt. So called expectant treatment in most cases amounts to practically no treatment at all. Aspiration has a very high mortality. Obstetrical operations have an enormous mortality, unless the obstructing tumor is removed before they are undertaken. Ovariectomy (usually abdominal) has a mortality far lower than any other procedure (less than five per cent. of all cases). Cæsarean section, if undertaken early, is an excellent procedure in certain cases.

Clawfoot, and How to Relieve It.—A. M. Forbes employs the following operation: After a subcutaneous plantar fasciotomy (with wrenching if necessary), he makes a horseshoe shaped incision on the dorsal surface of the foot, down to the extensor tendons, and a flap containing the tissues superficial to these is turned back on the dorsal surface of the tarsometatarsal articulation. The long extensor tendons are then detached from the phalanges and transplanted into the necks of the metatarsals.

Tendon Transplantation Operations.—H. P. Galloway states the following principles in tendon transplantations: 1. Perfect asepsis; 2, attachment of the transplanted tendon to the bone or periosteum is always more satisfactory than attaching it to another tendon or other soft tissues; 3, the tendon must be stretched moderately tight before being secured; 4, it must be fastened with suture material that will maintain its hold for several weeks; 5, a covering of subcutaneous tissue should be brought over it before the skin is sutured; 6, about six weeks should elapse before the transplanted tendon is allowed to function so that its new attachment may become sufficiently strong; further, the muscle should be systematically developed by massage and exercises and be carefully protected by mechanical means from overstrain for several months after the patient begins to use it.

Technic of Tubal Sterilization.—F. J. Taussig describes his operation as follows: The abdomen is opened by a small median incision and the uterine end of one Fallopian tube is seized with forceps. A suture is now passed through the uterine horn at the tubal insertion. Before tying this suture, the interstitial portion of the tube is cut away by a V shaped incision. Next, the tube is freed from its peritoneal attachment for a distance of about an inch and, a ligature having been thrown around the distal end, this free portion of the tube is resected. The layers of the broad ligament are then separated, and the end of the tube is inserted and secured there by a suture. The round ligament is now sewed by one or more sutures to the upper posterior surface of the uterus, thus closing over the point of the tubal insertion and the small space in the peritoneum of the broad ligament.

Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-eighth Annual Meeting, held at Chicago, Illinois, October 22, 23, and 24, 1912.

The President, Dr. LOUIS FRANK, of Louisville, Kentucky, in the Chair.

(Concluded from page 526.)

Pancreatic Lymphangitis and Chronic Pancreatitis.—Dr. JOHN B. DEEVER, of Philadelphia, said that pancreatitis must still be studied with an open mind in regard to its etiology, particularly in respect to its relation to chronic inflammatory disease of the alimentary tract which resulted in retroperitoneal lymphangitis; that treatment was promising in the early stages and practically hopeless when the stage of interstitial deposit of fibrous tissue was reached; that the most promising field for treatment consisted in the means already devised for the treatment of chronic inflammation in the organs with which pancreatitis was commonly associated and upon which it appeared to be dependent; finally, that pancreatitis was common and not rare, that its presence should be suspected in all cases of obscure, upper abdominal indigestion, and that like other chronic inflammatory lesions of the abdomen when it was uninfluenced in a reasonable length of time by medical measures it should receive surgical attention along surgical lines.

Preoperative and Postoperative Treatment of Prostatectomy.—Dr. WILLIAM N. WISHARD, of Indianapolis, said that the more discriminating use of urinary antiseptics had been suggested by gastric and renal irritation, following the prolonged use of large doses of hexamethylenamine. If renal elimination was good, as shown by urinary analysis, prolonged use of urinary antiseptics was not imperative. Where the urine was alkaline and offensive in odor and pus present in considerable amount, it had seemed desirable to use the drug for several days before operation, and to continue its use guardedly for a few days afterward.

The average period of preparatory treatment required in the writer's cases, had been from one to two weeks, and while some cases had been operated in earlier, others had been maintained upon preparatory treatment for a much longer period. Whether a suprapubic or perineal operation was performed, liability to postoperative hemorrhage was much influenced by the carefulness with which enucleation was done. In median perineal operations, the writer has found much advantage from the use of a solid metal inflow and outflow tube devised by his assistant, Dr. H. G. Hamer. If a two way rubber tube was used, its walls should be as firm as possible, as pressure from packing within the wound and around the tube might occlude the outflow. On changing the dressing and removing the gauze packing the morning following operation, the metal tube above referred to was also removed and subsequently a single soft rubber drainage tube was used.

While incontinence might not follow suprapubic operations, a fistula might occur either after suprapubic or perineal prostatectomy. Careful and thorough excision of the cicatricial tissue and thorough curettement of the deeper portion of the fistulous tract, followed by suturing and the maintenance of drainage by an anchored catheter in the urethra, had been succeeded by prompt closure in all the few cases of persistent fistula which the writer had observed after suprapubic or median perineal prostatectomy. Two cases of fistula had been referred to him where an inverted V shaped incision and exourethral enucleation had been done, and in one of these, closure was secured, but in the other the fistula persisted and in both there was associated incontinence. Occasional occurrence of fistula, however, was not necessarily an argument against any form of enucleation. Permanent incontinence had not following in any of the writer's cases operated in by median perineal incision, although it had persisted for a greater or less length of time in some of them. Systematic and persistent use of dilatation of the prostatic urethra and vesical orifice with Kollmann's dilator had usually given prompt relief.

Symptomatology and Pathology of Prostatic Hypertrophy.—Dr. E. O. SMITH, of Cincinnati, said the symptoms of prostatic hypertrophy were due either directly or indirectly to a mechanical obstruction to the outflow of urine from the bladder. The prostate gland, situated as it was around the proximal portion of the urethra and in very close relation to the bladder, could but interfere with the normal urine channel when it underwent changes that disturbed those normal relations. Increase in size and shape of the prostate would necessarily produce a mechanical change in the shape, length, or entrance into the urethra. Among the earliest changes noticed by the patient was the decrease of the force with which the urine was ejected. There was no projectile force that carried the urine away in a good stream. It was possible for a patient to have both a cord lesion and prostatic hypertrophy. This applied more particularly to patients who came during the early period of expected enlargement of the prostate.

As a result of the nature of the mechanical obstruction to the outflow of urine and the effect on the bladder, there was sooner or later a failure on the part of the bladder completely to empty itself, which was the beginning of residual urine. Acute, complete retention might come on suddenly without warning, following indiscretions on the part of the patient. From a prognostic viewpoint, probably the most important symptoms were those referable to the kidneys. The kidneys were affected either from back pressure, from infection, or both. Dilatation of the ureters and pelvis might follow long continued obstruction to urinary outflow, thus making a pressure on the renal parenchyma. Resulting from this was a functional insufficiency of the kidneys. The quantity of urine might not be diminished, but the urea and other products of elimination were below the normal.

It had been his observation that a great many, in fact a majority of patients troubled with prostatic hypertrophy suffered from marked mental depression. There were two general varieties of changes in the structure of the gland. One in which there was an increase in the so called glandular part of this structure and the other when there was but little tumor mass with greatly increased amount of dense, tough, fibrous tissue. In the open dissection of the perineum, the first part of the gland met was the posterior lobe which must be cut through before the real hypertrophy was reached. This bit of anatomical relation might explain some of the difficulties encountered by those attempting the open dissection method for the first time. Unless one got the enucleating finger into the capsule, the line of cleavage would be missed, and a very difficult task was made out of a comparatively simple one. The easiest place to find the line of cleavage was in the roof of the prostatic urethra.

Operative Treatment of Prostatic Hypertrophy.—Dr. HUGH CABOT, of Boston, said the object of prostatectomy was to remove the obstruction to urination with as little risk to life as possible, and as little damage to other structures and functions as might be. Only certain portions of the prostate were involved in the process known as hypertrophy. The prostate itself was compressed by the tumor and lay chiefly on the inferior and lateral aspects of the mass. The vesical and urethral aspects of the prostate in hypertrophy were covered only by the mucous membrane. The ejaculatory ducts lay wholly behind the tumor, which rarely, if ever extended further forward than the posterior border of the verumontanum. The prostate might be attacked by two routes, the perineal or the suprapubic. If the lower route was chosen, two quite distinct methods of attack still remained, the endourethral method of enucleation, and the transprostatic method, the operation of Young. Of the suprapubic operation there could hardly be important modifications except in technical details, as the attack was direct and head on. It was useless to deny that the mortality of suprapubic prostatectomy was higher than that following the perineal operation.

Briefly summarized, the relative merits of the suprapubic and perineal operations in their present state of development seemed to him to be these: The suprapubic route was the anatomically correct approach. It attacked the hypertrophied portion at the point where it could be reached with less destruction of tissue and with the greatest certainty of complete removal of the obstructing portion. It did less damage to other structures, interfered

less with other functions, and was followed by fewer complications. It was more certain to result in cure. The peineal operation showed at the present time a definitely lower mortality. It was a more difficult surgical procedure no matter what technic was selected. It was more likely to do damage to other structures and functions and was less certain to result in cure. Of the various types of perineal operation that of Proust combining the pre-rectal incision with the endourethral enucleation was best adapted for the uses of the average surgeon.

Procedures Adapted to the Exposure of the Structures at the Base of the Skull.—Dr. CHARLES H. FRAZIER, of Philadelphia, said the majority of the contributions had dealt with the osteoplastic flap as a means of exposing the cortical surface, and the general surgeon was now fully equipped to do what once was intrusted largely to the specialist. The osteoplastic resection of the skull was designed solely for the uncovering of lesions occupying the more accessible regions of the brain, as of the frontal, parietal, or occipital lobes, and in so far as the various steps of the operation were concerned, they had been elaborated to a degree of accuracy and mechanical refinement that admitted of little criticism. There remained, however, structures within the cranial cavity which must be approached in other ways and by other methods, structures occupying positions at the base of the skull in the posterior, middle, or anterior fossa. These structures, situated as they were beneath the cerebral or cerebellar hemispheres near the median line, were very much more inaccessible and required for their exposure the methods especially designed to meet the difficulties peculiar to each.

Beginning with the posterior fossa, occasions arose in which the endocranial division of the auditory nerve might be indicated, as in cases of persistent and intractable tinnitus or persistent and intractable vertigo of central origin. He had recently placed on record the case of an elderly lady upon whom this operation was practised, and would dwell here, therefore, only on the important technical features. The operation consisted essentially in a suboccipital craniectomy, unilateral in extent. For these operations on the posterior fossa, Meltzer's method of endotracheal anesthesia was a measure of safety which could not be overestimated, and to his mind should be regarded as indispensable in one's equipment for operations in this region. Prior to the introduction of this method he had observed, especially while operating for lesions in the cerebellopontile angle, how imperfect was the expiratory exertion and inadequate exchange of gases, when the patients were in the prone or face down position, and for this reason he preferred to place them on their side on an especially designed table. With endotracheal anesthesia, all the alarming respiratory difficulties vanished, and what he once regarded as a most serious venture in these operations had now become the simplest and the safest. For the exposure of the auditory nerve, one turned downward a flap sufficient to uncover as much of the occipital bone as lay below the superior curved line. From the level of the lateral sinus down to the foramen magnum, and from the emissary sinus to the medial line, the occipital bone was removed, uncovering one cerebellar hemisphere. One then followed the petrous bone till the internal auditory meatus was recognized into which would be seen entering the auditory nerve.

The mechanics of cranial surgery should not occupy too prominent a place in the minds of those engaging in this field. Of still greater import were the factors of safety, the observance and disregard of which made an endocranial operation a reasonable or an unreasonable risk. The high rate of mortality in past times was the outcome of too little regard for the refinement of cranial technic. The casual visitor to the clinic was amazed at the size of the exposure, but overlooked many of the features essential to success. The safest means of administering the anesthetic, the most effective means of controlling hemorrhage from whatever source, as the use of the muscle graft to check hemorrhage from the pial veins, the mastery of the problems of brain displacement, the knowledge of the tolerance of the brain to exploration for subcortical lesions, these and others were some of the factors that made for good or evil results.

Arsenic in Therapy.—Dr. W. F. BARCLAY, of Pittsburgh, pointed out that the poisonous and injurious effects of arsenic in medicine induced peculiar susceptibility

to its action and intolerance. The tolerance of mercury was limited by its poisonous effects, which were permanent. The same observation was true of arsenic and precluded its use and beneficial administration after its abuse. It was a well known truth based on actual observation and experience that mercurial poisoning or pytalism induced intolerance and precluded the use of mercury in treatment of diseases. The susceptibility to the poisonous effect of mercury after toxicity had been induced forbade its further use even when it was indicated. The intolerance was manifested in disturbances in the entire digestive system, in loss of appetite, salivary excitation, increase in salivation, diarrhea, malnutrition, and impaired metabolism of the blood. A like tolerance of arsenic was induced by its misuse and abuse even of a more serious character in its immediate and remote effects. There could be no question of the evil results which followed the abuse of arsenic in reports and facts made known and accounts given to the profession of medicine by physicians capable to make accurate observations. The mention of a positive conclusion was that arsenic, combined so it could be used in medicine without poisonous or injurious effect, was chemical and therapeutic scientific skill in medical science. Excessive doses without rapid elimination were dangerous to life and health and of no therapeutic advantage. Mercury was analogous to its congener arsenic in the treatment of syphilis and was the acme of medical treatment in lasting permanent results. Arsenic, like iodine, modified syphilitic manifestations promptly, but never cured the disease. Arsenic in treatment of all skin lesions and diseases of the mucous and serous membranes was of great advantage and gave prompt and permanent results. Arsenic in the treatment of rheumatism was a specific in chemical combination which insured rapid elimination. No remedy, was of more scientific interest, yet less understood in the profession of medicine.

Thyrogenic Origin of Basedow's Disease.—Dr. J. H. JACOBSON, of Toledo, drew the following conclusions: 1. Basedow's disease could and had been produced experimentally in lower animals by the injection of thyroid pressure fluid, by the implantation of the thymus gland, and by the injection of the macerated thyroid gland. Gland symptoms resembling Basedow's disease could be produced in animals by thyroid feeding. 2. The evidence at hand indicated the close relationship between the thymus and thyroid gland. 3. The symptoms of Basedow's disease were due either to an excess or to a perverted secretion of the thyroid gland, with the primary disturbance existing in the thymus gland, the action of the thyroid being that of a multiplier, according to the theory of Mikulicz. 4. Basedow's disease had been produced in man by the excessive administration of thyroid extracts and preparations of iodine. 5. There were changes in the thyroid gland, chemical, microscopical, macroscopical, which were characteristic of Basedow's disease. 6. Typical Basedow's disease or symptoms of hyperthyroidism, so called secondary Basedow's disease, occurred after, or in connection with other affections of the thyroid, such as simple and adenomatous goitre, cancer, and inflammation. 7. There was a characteristic blood picture in Basedow's disease, which disappeared after the surgical removal of a sufficient amount of the diseased thyroid tissue. 8. The successful treatment of Basedow's disease by measures directed toward the thyroid itself, as well as by serum therapy, proved the thyroid origin of the disease. 9. Basedow's disease could be cured by the surgical removal of portions of the gland in approximately seventy per cent. of all cases.

Surgical Importance and Treatment of Hyperthyroidism.—Dr. W. D. HAINES, of Cincinnati, said that a tragedy which occurred in a patient's life two years previously had been followed by hyperthyroidism. The influence wrought upon the heart was discovered during a period of quiescence, the ash of a process whose identity became known only when again set in motion, this time, not by a tragedy, but by an acute infection—appendicitis. Relief of the appendicitis did not in any way benefit the hyperthyroidism; on the contrary, the excitement incident to anesthesia, operation, and hospital life would naturally tend to aggravate thyroid symptoms. Relief was finally obtained by removal of the right lobe and isthmus and ligation of the left superior thyroid artery. There was a

very decided improvement in the heart's action following treatment and operation, the exophthalmos had almost entirely disappeared, and the patient remained comfortable despite a badly damaged heart.

A few other cases, including an acute cholecystitis, empyema of the gallbladder, and an acute salpingitis had been observed by the writer coexistent with hyperthyroidism, but the report of the one case would suffice to illustrate his purpose in bringing up this subject.

The frequency with which hyperthyroidism was associated with valvular lesions, compensatory hypertrophy, degenerative changes in the heart muscle, and clinically abnormal heart should admonish one to always be on guard for one of the protean manifestations of hyperthyroidism. He formerly did goitre operations through very short incisions, retracting the muscles in preference to dividing them. He now employed a long incision, dividing the sternohyoid and sternothyroid, and sternocleidomastoid if necessary for free exposure of the gland and its circulation. Time and certitude were thus gained, and if the muscle was divided well above the entrance of the nerve supply, say on a level with the junction of the middle and upper third and the ends carefully sutured, restoration of function would follow and the resultant cicatricial deformity would be such as would scarcely mar the contour of the neck. By working within the capsule, one would protect the parathyroids and the patient from the serious consequence following injury to these important structures. He used catgut as ligature material and never removed a hemostat without having first ligated the vessel which it controlled, irrespective of size. Finally, one should remember the neck as a privileged region and handle its structures with the utmost delicacy consistent with precision and celerity in doing goitre work.

Surgical Management of Exophthalmic Goitre.—Dr. W. D. HAGGARD, of Nashville, in reviewing the surgical management of exophthalmic goitre, said it was not contended that there was not a field for dietetic, hygienic, and therapeutic treatment. From a considerable experience, however, and from observation and reports of the work of those of very large experience, the writer believed, in common with many other observers, that the surgical treatment of this disease afforded the most effective and lasting benefit. It had stood the test of time far better than the purely medical management. The latter had been largely empiric. No matter at what time of life the early symptoms of hyperthyroidism developed, it was pretty satisfactorily demonstrated that reduction of the blood supply to the too active gland was a rational and effective method of treatment. The ligation of one or more of the thyroid arteries, under local anesthesia, constituted one of the most satisfactory methods of handling this disease. It might be likened to the early operation for appendicitis. It should have a very much wider application. Recognizing the progressive and threatening tendency of the malady, it was fortunate to have in pole ligation so safe, simple, and positive a method of permanent relief in the early cases.

Ligation was also indicated at the other extreme of the disease—when the patient was too ill for a radical removal of the hyperplastic lobe. It should be more generally understood that operation was not to be employed when the patient was in an acute exacerbation, or was rapidly growing worse; but, if by rest in bed, with the ice cap over the heart, exhibition of belladonna, etc., the patient could be got into satisfactory condition with the pulse below 120, the operation could be undertaken.

Mayo, in the first nine months of last year, performed 900 operations on the thyroid with a mortality of one per cent. For the exophthalmic cases, however, even in his skilled hands the mortality was more than threefold. Speaking of the end results, Crile said "no person died of the disease after leaving the hospital; one patient was made worse by the operation, otherwise every patient was either benefited or cured."

Kocher said that many patients knew what real mental quietude meant only after the fundamental relief by operation. There was no more brilliant surgical achievement than the restoration of these nervous and circulatory invalids to the pursuit of happiness and the paths of peace.

Urological Aspect of the Microscope as a Localizer of Disease.—Dr. CARL LEWIS WHEELER, of Lexington, made a plea for a more thorough microscopic examina-

tion of the urine, studying the urinary findings under higher magnifying power (500 diameters) with an effort toward differentiating the various epithelia and other features found in urinary sediment, saying in this way we might locate and diagnosticate pathological lesions along the urinary tract. All morbid processes occurring within the urogenital tract were marked by the presence of pus corpuscles, and the location was determined by the character of the epithelia found. Normally, the only epithelia found in the urine were of the flat variety, in small numbers, coming from the bladder, while in the female might be seen flat epithelia from the bladder and vagina. The presence of all other epithelia was pathological. The diagnostic point in differentiating epithelia was absolute size, and the pus corpuscle was taken as a standard of comparison in differentiating the various smaller epithelia, such as came from the convoluted and straight collecting tubules of the kidney, ureter, kidney pelvis, and prostate. He reported numbers of cases in which the diagnoses were made from urinary findings alone, in the absence of any clinical history whatsoever, the diagnosis being confirmed by cystoscopy, ureteral catheterization, operation, or autopsy.

The ordinary methods of the study of the urine under the microscope, beyond the detection of casts, were faulty and almost worthless, and his paper was offered as a defense of the Heitzmann school of microscopical urinary diagnosis; for already, since the advent of ureteral catheterization, many authorities who had denounced Heitzmann's assertions, had deemed it wise slightly to modify their opinions.

Value of Direct Transfusion of Blood.—Dr. A. L. SORESI, of New York, stated that 449 cases of direct transfusion had been collected from publications and directly from hospitals, where surgeons had performed it. Transfusion was useful in 234 cases, and a failure in 215. Failures were due to lack of correct indications, lack of training to do useful work on the bloodvessels, to the fact that the physiologically correct technic had not been employed, and to the further fact that transfusion had been used too late. Transfusion had been employed in 217 cases of hemorrhage from different causes and was found successful in 158. The most successful cases were those of hemorrhages of the newborn and in hemophilia, where the blood was used also as a hemostatic agent. Transfusion was used in twenty-six cases of shock and collapse, in fifteen of which it was a failure. It was used in thirty-seven cases of pernicious anemia, which were all failures, the patients having at the best only a temporary improvement. It was used in the preparation of patients for surgical operations in thirty-nine cases, with seventeen failures; in sepsis from various causes, nineteen cases, with sixteen failures; in diabetic coma, three cases, all failures; in eclampsia, five cases, with three failures; in pellagra, thirty-five cases were reported in which it was used, and only fourteen failures were reported; in undiagnosed conditions seventeen cases, with fifteen failures; in surgical cases of tuberculosis, seven times, with four failures; in carcinoma and sarcoma, sixteen cases, and none modified by the transfused blood; in exophthalmic goitre, four cases, all failures; in illuminating gas poisoning, nine cases, with six failures; in pneumonia, two cases with one failure; in Bright's disease, one case, a failure; in one case of starvation due to volvulus, successfully.

The author recommended the use of his cannula, because the bloodvessels were not traumatized, and thrombosis was avoided. Vein to vein transfusion, using the external jugular of the recipient and a vein of a limb of the donor; as soon as the bloodvessels were exposed, they should be kept moist and warm by pouring upon them a continuous stream of sterile warm saline solution.

Eczema as Seen by the General Practitioner.—Dr. A. RAVOGLI, of Cincinnati, said the general practitioner had to look upon eczema not as an incurable disease. Eczema was curable, when properly treated. It was wrong to starve the patients, forbidding articles of food without scientific ground. On the contrary, the patient had to be well fed in order to increase albumin in the serum to form antibodies to oppose the toxic elements. Only indigestible and badly preserved articles of food had to be avoided. The general practitioner had to renounce the false idea, or rather the superstition that washing and cleansing eczematous surfaces was injurious. The affect-

ed parts had to be cleaned and kept aseptic like other suppurating wounds. Solutions of bicarbonate or of bichlorate of sodium, or even a mild soap accomplished the purpose.

For an acute eczema bathing with a two per cent. solution of subacetate of aluminum was very beneficial. After bathing, the surface was covered with starch or talcum powder. For a papular and vesicular eczema applications of liniment of ichthyol, or of carbonate of zinc were useful. In recurrent vesicular eczema, painting the surface with tincture of iodine to sterilize the surface had given very good results. Rhagades must be touched with silver nitrate, from three to five per cent. solution. Many different preparations in the form of salves, pastes, gelatines, lotions, were recommended in textbooks, but the physician must familiarize himself with their use.

Election of Officers.—The following officers were elected for the ensuing year: President, Dr. Albert E. Sterne, of Indianapolis; first vice-president, Dr. D'Orsay Hecht, of Chicago; second vice-president, Dr. Hugh Cabot, of Boston; secretary, Dr. Henry Enos Tuley, of Louisville; treasurer, Dr. Samuel C. Stanton, of Chicago. New Orleans was selected as the place for holding the next meeting.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Textbook of Human Physiology. By ALBERT P. BRUBAKER, A. M., M. D. Fourth Edition. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xii-736. (Price, \$3.)

The fourth edition of Professor Brubaker's textbook more than sustains the high standard of its predecessors. Through condensation it was found possible to introduce considerable new matter without increasing the very convenient size of the volume. The new paragraphs which have been inserted in the various chapters contain facts relating to the mechanical movements of the stomach and intestines and the nerve mechanisms regulating them; the digestion and absorption of the proteins; the viscosity, specific gravity, and coagulability of the blood; the physiological mechanism of the heart and the properties of the cardiac muscle; the venous pulse; the auscultatory method of determining blood pressure; the modifications of the respiratory rhythm; the physiological action of the pituitary gland and the adrenals, etc. Brubaker's *Physiology* presents a great advantage over the majority of textbooks in that it is not overburdened with technical details, descriptions of complicated instruments, and other matter of interest to the physiologist but not to the general practitioner or student. It thus admirably fulfills its purpose without fatiguing the reader, and thereby facilitates his labor.

Arteriosclerosis, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By LOUIS M. WARFIELD, A. B., M. D. With an Introduction by W. S. TRAYER, M. D. St. Louis: C. V. Mosby Company, 1912. Pp. 220. (Price, \$2.50.)

The second edition of this contribution to our knowledge of a disease which is steadily increasing as a result of the stress and strain of modern life, contains many changes and additions, including two new chapters, one on the physical examination of the heart and arteries, the other on the relations of the disease to life insurance. The presence of the former seems unnecessary in a work of this kind, but—and this may be said also of a long chapter on the physiology of the circulation—the author doubtless felt that in order to convey adequately the subject matter bearing on the disease itself, a thorough review of these elementary questions was necessary. The book on the whole is a very readable one and gives an excellent summary of the classic interpretation of a malady which, as Trayer states in an introduction, "is fast coming to take a place near the throne once occupied by 'malaria.'"

A Textbook of Practical Therapeutics. By HOBART AMORY HARE, M. D., B. Sc. Philadelphia and New York: Lea & Febiger, 1912. Pp. x-984.

The fact that fourteen editions of Hare's *Therapeutics* have found a successful market renders praise unnecessary. Much new matter has been introduced, including a chapter on the newer remedial resources, salvarsan, vaccine therapy, Bier's hyperemia, etc. It seems, however, as if some of the older subjects had been neglected, for we do not find under ergot, for instance, any reference to the presence of parahydroxyphenylethylamine and beta-imidazolylethylamine and other putrefactive amines, the importance of which, in the action of ergot, was shown by the investigations of Barger and Dale. These features will doubtless be added in the next edition.

Acromegaly. A Personal Experience. By LEONARD PORTAL MARK. London: Baillière, Tindall & Cox, 1912. Pp. viii-160.

We gave editorial consideration to this work upon its first appearance in our issue for April 13, 1912. (P. 757). There is something very pathetic, as we then intimated, in this story of a physician who, as the victim of a disfiguring and painful disorder, records his feelings, his thoughts, his mode of life, how the disease has influenced that life, the various symptoms he experienced "from the seborrhea on his scalp to the trophic changes in his toes." Fortunately, for some fifteen or twenty years he failed to recognize his condition, though his many medical friends did. "The strange thing was," he writes, "that in my case, the only one not in the secret was poor Polichinelle himself, with his heavy jowl, his pot belly, his big hands and feet. It is a remarkable example of how what is obvious may be overlooked"—remarks which illustrate the author's fine character and fortitude. He finds it even a pleasure to lay his experiences before his colleagues, hoping that they be of some use, and to record some of the great kindnesses he has received from his brother practitioners. Although Doctor Mark does not pretend to present a scientific treatise on acromegaly, he nevertheless contributes a very valuable study of its symptomatology, including details which are not obtained from a layman in the course of even a careful examination. The book is therefore a valuable addition to our literature of the subject.

Les Produits biologiques médicinaux. Par P. BYLA et R. DELAUNAY. Paris: Société d'éditions scientifiques et médicales, F. Gittler, directeur, 1912. Pp. viii-466.

Under this title is hidden a very interesting book from the viewpoint of the therapist. It treats of the use in disease of the various agents derived from plants and animals which in man may compensate for deficiencies in physiological constituents. Thus, under the heading of soluble ferments are considered pepsin, pancreatin, amylase, kinase, secretin, etc.; while under coagulating ferments are treated animal and vegetable labferment, fibrin ferment, etc. The whole gamut of oxydases, yeasts, albuminoids, and lipoids finds a normal place in the series of therapeutic agents studied, the whole ending with a comprehensive review of the present status of opotherapy, both animal and vegetable. It may safely be stated that over one half of this volume is made up of matter which the average textbook of therapeutics fails to treat. This endows it with special value as a work of reference, not only for the biological chemist, but also for the practising physician.

Les Médicamentes en clinique. Par le Dr. SCHEFFLER, de Saint Etienne. Paris: Libraire O. Berthier, Emile Bougault, Succ., 1912. Pp. 330.

In this book of 300 pages, the author confines himself strictly to the clinical use of remedies. Their physiological action, from his viewpoint, may be totally different from their therapeutical effects, an assertion upon which he bases the belief that the former need have no place in the treatment of disease. This argument leads the author into clinical empiricism in the sense that the effects, good or bad, of what drugs he enumerates serve as the sole criteria for their use. While the book serves to portray satisfactorily the relative value of various remedies in practice, the author's plan deprives it of the scientific value

which modern readers expect. Analysis of the manner in which a remedy produces its effects is almost a necessary accompaniment of a work on therapeutics nowadays, and to overlook this fact is to favor a heritage of the past which all serious workers are trying to eliminate as a distinct impediment to progress.

Du Strabisme. Par Dr. PIERRE LAGLEYZE. Paris: Jules Roussel, 1913. Pp. 409.

This book can hardly be called a compendium of what is known in regard to strabismus, for, although the theories of others are discussed to some extent, it presents mainly the views of the author and the results of his personal observations. Many of these results should be taken into careful consideration, as the amount of material studied is large, but it is a pity that so little attention is paid to the theory, rather popular at present, that strabismus is caused in many cases by an imperfection in the power of binocular single vision, the controlling force that compels both eyes to be directed together at the same object, and to the efforts that are being made to develop this power in strabismic children. Some of the observations made would seem to uphold this theory, though no such inference is drawn in the book. For example, the authors found in an examination of 2,368 cases of convergent strabismus that the refraction was within .50 D of alike in both eyes in forty-nine per cent. of the cases of the monocular variety, and differed more than .50 D in fifty-one per cent., while in the alternating variety the corresponding figures were seventy-one and twenty-nine per cent. The visual acuity was determined in 968 of these cases and found to be exactly the same in 270, not the same in 698. The author devotes considerable space, not only to the relations of refraction and anisometropia to strabismus, but also to those of various other ocular conditions, and of precedent diseases, such as whooping cough and measles, in the study of its etiology. Under pathogeny the author deals with the static position of the eyes, convergence, the relations between refraction and vision, the nature of strabismus, and some of the theories that have been advanced concerning it. He maintains that the amblyopia found in two thirds of the cases of horizontal strabismus is congenital, never developed, always remains the same, neither increasing nor decreasing, and presents certain peculiarities relative to the dioptric condition of the eyes. In other words his views are diametrically opposed to those of ophthalmologists who believe in an amblyopia exanopsia. The third part of the book is devoted to treatment. Here the author discusses the curability of strabismus, the effect of glasses, and the efficiency of the various operations.

Entwicklung und gegenwärtiger Stand der Immunitätsforschung in Amerika. Von J. G. FITZGERALD, Berkeley, Cal. Herausgegeben von Prof. Dr. WOLFGANG WEICHARDT, Erlangen. Stuttgart: Ferdinand Enke, 1912. Pp. 90.

Fitzgerald gives a brief résumé of the extensive literature published in America, in 1911, dealing with the question of immunity. It is well done and is valuable for purposes of reference. It would be still more valuable if there were an index but as it is a reprint from the *Jahresbericht über die Ergebnisse der Immunitätsforschung 1911* that adjunct is lacking.

Papers on Psychoanalysis. By ERNEST JONES, M. D. (Lond.), M. R. C. P. (Lond.). New York: William Wood & Co., 1913. Pp. xv-432. (Price, \$4.)

No enthusiastic Freudian has ever made a more rational or agreeable plea for the acceptance of this phase of psychopathological study than has Ernest Jones. The book is composed of various papers by the author, published for the most part in psychological journals. Read by the specialist they afford strong evidence in behalf of Freud's peculiar views; read by the general clinician they are likely to create a dangerous impression, unless it is distinctly borne in mind that herein is special pleading for conceptions by no means accepted by many leaders in psychopathology. Opposing views, the author asserts, are "prejudices against which it is the duty of the skeptical investigator to maintain a purely critical attitude."

Now, the general practitioner is not wholly without judicial faculties, though he may lack adequate training in

psychopathology. This collection of evidence, when viewed as a contribution to advances in the subject as a whole, is valuable; perused with a strictly open mind, it affords an excellent survey of much that everyone interested in the art of healing needs to become aware of. Each one is permitted, by accepting the conditions imposed by the author, to form his own conclusions, especially if he takes pains to familiarize himself with the views of leading authorities in the whole broad field of psychopathology.

We are urged by the Freudians to accept the sex impulse as paramount in causation of psychopathies. Says Jones: "The strongest opposition to Freud's views undoubtedly centres around the significance he attaches to the sexual instinct. It should be remembered, however, that Freud combats the narrow conception of this that generally prevails; apprehends the expression in a much wider sense. From this point of view it will be seen that the importance he attaches to the [sex] instinct does not greatly differ from that of Schopenhauer's and Nietzsche's *Wille zur Macht*, Bergson's *élan vital*, Shaw's life force, and the vital impulse of so many writers, all of which are equivalent to what Freud terms *libido*. He replaces these metaphorical or poetical phrases by a scientific and biological one."

We may well commend the author's presentation of certain of the specialisms of Freud, e. g., the word association method; his theory of dreams and their influence on waking life, as well as the fundamental and somewhat fetid exaggeration of the significance of sex impulses gone wrong.

If there is one thing at which clinicians of large experience are likely to balk it is the acceptance of the suppressed sex complexes as the fundamental cause of psychopathies. There is so much convincing evidence to the effect that the basis of psychopathies lies much farther back in primal impulses, the instinct of self preservation, fear of the actual, deadly, unceasing perils from without, ploughing effects in the consciousness till they become automatic terrors long before such endogenous and intermittent impulses as that of reproduction have had time or occasion to mould determination.

The Freudians exhibit an undue eagerness to force on us their assumption of the universality of the sex postulate, which at times savors of a suspicion that it is not provable. The way they emphasize their asseverations is needlessly final. Now the term *psychoanalysis* is a mighty good one, capable of a wide and general applicability.

All who undertake the responsibility of disentangling the phenomena of disordered consciousness use, or should use, psychoanalysis; a marshalling of all obtainable facts, subjecting them to critical survey, analyzing, grouping them in their bearings upon factors in psychic and somatic disabilities; and then should proceed to reintegrate, psychosynthesize, and apply the word in season with wisdom and force. It must not be overlooked that, valuable as it may be to find and eliminate a sex twist when it occurs, to hunt for it sedulously if it is reasonably suspected, it is deplorably dangerous and filthy ground to dig in; it may and often does induce by suggestions of a perilous character; hence it is not to be lightly recommended, especially when other equally efficacious means are at hand.

BOOK AND MAGAZINE NOTES.

Not since the publication of Dr. J. Starke's *Alcohol; the Sanction for its Use*, nearly four years ago, have we seen such a work as *The Psychology of Intemperance*, by G. E. Partridge, Ph. D. (New York: Sturgis & Walton, 1912. Price, \$1). It is a discussion of the alcohol question admirable in tone and style, not carried, the author states plainly, into the theory of ethics, but based upon scientific data. The book should be carefully read by physicians who above all others ought to have an accurate idea of what alcohol really means to civilization. Doctor Partridge has kept his temper admirably in arguing his thesis and has not been irritated by the flood of misrepresentation, misinformation, intolerance, and blindness to facts which have generally entered into the propaganda of the antis. He freely admits that there are individuals who should never touch alcohol, that the drug is possibly harmful physically to many, and that it is cowardly and

wrong to seek refuge in narcotism when assailed by the problems of life. As to the saloon the author thinks it may well be replaced by a better kind of resort, but not one without alcohol; the saloon, like all other human institutions, has certain elements of good. The book is very interesting, and we commend to "moderate drinkers" the chapter on The State of Intoxication. The author closes with the question: "What . . . could be more completely wrong than to try to cure the drunkard by punishment and isolation, when his greatest need is a normal and social life?"

The Evil Eye, Thanatology, and Other Essays, by Roswell Park, M.D., LL.D. (Boston: Richard G. Badger, 1912), is a book which we can cordially recommend to our friends who like scholarly writing of a nonprofessional kind by their fellow physicians. Doctor Park goes far afield in these essays which show deep reading and original thinking, yet are presented in a clear and entertaining style. Most of the essays have made a previous appearance in medical and other periodicals, and a steady ripening in manner is perceptible if we know which essay to read first and their chronological order. Many surprises await the medical reader who does not stray often from his medical books, particularly in such an essay as that on Iatrotheurgic Symbolism, and here and there in our country will be found a relic of our early medical educational methods who will be outraged at his first acquaintance with facts that have been commonplace to scholars for several decades. We have only welcome for books like this from our colleagues and hope they will serve to encourage a much needed literary cultivation among a large number of too hastily made graduates.

Baa, Baa, Black Sheep! was republished in an evening paper a few days ago and we reread it with gusto. It is one of the best of Kipling's early tales and is written with a power and bitterness that seem to express a neglect by his guardians of the author's myopia when he was a child. It is a story of particular interest to physicians in showing how certain mental traits may originate and become profoundly engrafted in a neglected physical defect.

Meetings of Local Medical Societies.

MONDAY, March 17th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Elmira Clinical Society; Hartford, Conn., Medical Society.

TUESDAY, March 18th.—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine; Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Psychiatric Society of Ward's Island; Medical Society of the County of Westchester; Clinical Society of the Elizabeth, N. J., General Hospital.

WEDNESDAY, March 19th.—New York Academy of Medicine (Section in Genitourinary Diseases); Woman's Medical Association of New York City (Academy of Medicine); Medicolegal Society of New York; Northwestern Medical and Surgical Society of New York; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association.

THURSDAY, March 20th.—New York Academy of Medicine (stated meeting); German Medical Society (Brooklyn); Newark, N. J., Medical and Surgical Society; Aesculapian Club of Buffalo, N. Y.

FRIDAY, March 21st.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical and School and Hospital; New York Microscopical Society; Brooklyn Medical Society; Saratoga Springs Medical Society.

SATURDAY, March 22d.—West End Medical Society; New York Medical and Surgical Society; Harvard Medical Society; Lenox Medical and Surgical Society of New York.

Official News.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending March 8, 1913:

Heiner, R. G., Passed Assistant Surgeon. Detached from the *Connecticut* and ordered to Guantanamo Naval Station, Cuba. **Irvine, W. L.**, Assistant Surgeon. Detached from Guantanamo Naval Station, Cuba, and ordered to the *Connecticut*. **Kaufman, J. B.**, Passed Assistant Surgeon. Ordered to the Atlantic Reserve Fleet.

Births, Marriages, and Deaths.

Married.

Craig—Budd.—In Philadelphia, on Wednesday, February 26th, Dr. John Percy Craig, of Chester, and Miss Anna Burwell Budd. **Pahlas—Pings.**—In Denver, Colo., on Thursday, February 27th, Dr. Henry M. Pahlas and Miss Bertha Pings. **Stevenson—Torpey.**—In Buffalo, N. Y., on Tuesday, February 25th, Dr. H. Burton Stevenson, of Baltimore, Md., and Miss Katherine Torpey. **Van Orden—Owen.**—In Oakland, Cal., on Saturday, February 22d, Dr. Lincoln Van Orden and Miss Helen Owen.

Died.

Bergengren.—In Lynn, Mass., on Friday, March 7th, Dr. Frederic Wilhelm Alexis Bergengren, aged seventy-two years. **Bigelow.**—In Detroit, Mich., on Monday, February 24th, Dr. Delno M. Bigelow, aged thirty-eight years. **Blair.**—In Philadelphia, on Saturday, March 8th, Dr. James Edward Blair, of Burlington, N. J., aged fifty-one years. **Bohannon.**—In St. Louis, Mo., on Thursday, February 27th, Dr. Charles Alexander Bohannon, aged seventy years. **Cross.**—In Dunsmuir, Cal., on Sunday, February 23d, Dr. Hugh Cross. **Doyle.**—In St. Joseph, Mo., on Tuesday, February 25th, Dr. Thomas H. Doyle, aged seventy-three years. **Dunn.**—In Louisville, Ky., on Friday, February 28th, Dr. Jesse T. Dunn, aged forty-five years. **Evans.**—In Pasadena, Cal., on Friday, February 28th, Dr. Albert J. Evans, of Lockport, N. Y., aged eighty-eight years. **Foy.**—In Yonkers, N. Y., on Wednesday, March 5th, Dr. Michael Henry Foy, aged thirty-nine years. **Hesse.**—In St. Louis, Mo., on Wednesday, February 26th, Dr. Amale Hesse, aged sixty-eight years. **Holmes.**—In Rahway, N. J., on Sunday, March 2d, Dr. Charles B. Holmes, aged sixty-five years. **Hull.**—In New Brunswick, N. J., on Thursday, March 6th, Dr. Henry A. Hull, aged eighty-one years. **Hurt.**—In Boonville, Mo., on Monday, February 24th, Dr. Peyton L. Hurt, aged sixty-eight years. **Kadison.**—In Chicago, on Wednesday, February 26th, Dr. Albert P. Kadison, aged seventy-three years. **Kimberley.**—In Brooklyn, N. Y., on Friday, March 7th, Dr. Augustus Greene Kimberley, aged eighty years. **McElwee.**—In Macon, Neb., on Saturday, March 1st, Dr. Francis M. McElwee. **Molkup.**—In Chicago, on Saturday, March 1st, Dr. Frank C. Molkup, aged forty-two years. **Phillips.**—In Bear Lake, Pa., on Thursday, February 20th, Dr. A. P. Phillips, aged eighty years. **Schilling.**—In Newark, N. J., on Saturday, February 22d, Dr. William Schilling, aged eighty-eight years. **Selover.**—In Trumansburg, N. Y., on Tuesday, February 25th, Dr. John R. Selover, aged eighty-nine years. **Silverberg.**—In Los Angeles, Cal., on Saturday, February 22d, Dr. George M. Silverberg, of Chicago, aged fifty-two years. **Treize.**—In Brooklyn, N. Y., on Tuesday, March 4th, Dr. John Davies Treize, aged fifty-one years. **Trolinger.**—In San Antonio, Texas, on Thursday, February 27th, Dr. Henry J. Trolinger, aged sixty-three years. **Wakefield.**—In Warren, Me., on Thursday, February 27th, Dr. John Morse Wakefield, aged sixty-one years. **Washington.**—In St. Louis, Mo., on Tuesday, February 25th, Dr. Edgar I. Washington, aged thirty-six years. **Wessells.**—In Canajoharie, N. Y., on Sunday, March 2d, Dr. Silas A. Wessells, aged sixty-one years. **Willis.**—In Waltham, Mass., on Saturday, March 1st, Dr. John Warren Willis, aged eighty years. **Woodson.**—In Rushville, Mo., on Wednesday, February 26th, Dr. Lyman R. Woodson, aged forty-three years.

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Original Communications.

ARTIFICIAL PNEUMOTHORAX.*

Indications and Contraindications.

By S. ADOLPHUS KNOPF, M. D.,

New York.

Professor of Medicine, Department of Phthisiotherapy, Post-Graduate Medical School and Hospital.

Artificial pneumothorax is an operation which consists in filling the affected side of a tuberculous chest with sterilized atmospheric air or some gas, oxygen or nitrogen, for therapeutic purposes. Experience has shown that by producing collapse and compressing the affected lung, the production and absorption of toxins resulting from mixed infection are greatly diminished. When the affected lung is put at rest there is, concomitant with the diminution and total disappearance of the mixed infection, a constitutional improvement. The diminution or disappearance of cough, improvement of appetite, normal temperature in not a few instances, and the seeming arrest of the disease, are the results obtained by the production of artificial pneumothorax. The gas which has been found preferable for this purpose is nitrogen, because it is absorbed less rapidly than any other.

Under what conditions are we justified in suggesting to our patient the advisability of this operation, which, though in itself simple, is not entirely free from danger, accidents, and unpleasant sequelæ? The more serious accidents are rare, however; perhaps not more frequent than the accidents from anesthesia, and one would surely not condemn the use of chloroform, ether, or any other anesthetic because of an occasional accident.

My personal experience is still very limited, but what I have seen, heard, and done myself, and the perusal of the literature at my disposal, enable me at this time to make the following statement concerning the indications for the production of artificial pneumothorax:

First, it is indicated in all such cases as have not improved under ordinary hygienic, dietetic, climatic, and symptomatic treatment. Such cases are as a rule moderately or far advanced.

Second, it is indicated in those earlier cases in which there is no improvement because of mixed infection, or lack of recuperating powers, or when for other often inexplicable causes the condition remains stationary or the progress is particularly slow.

Third, it is, of course, indicated in all rapidly progressing cases whether they are treated in institutions or at home, and in no matter what climate.

Fourth, it is indicated for all patients of the moderately or far advanced type, within or without institutions, who are discontented, feel that not enough is being done for them, and who are desirous to have artificial pneumothorax tried.

Last, but by no means least, artificial pneumothorax is indicated in uncontrollable hemorrhage or chronic sanguineous expectoration.

Before speaking of the contraindications, I wish to state emphatically that bilateral involvement, if one lung is considerably and the other one much less involved, is not a contraindication to the production of artificial pneumothorax. Those of us who see a good many tuberculous cases, in private or hospital practice, will admit that tuberculosis strictly limited to one side is rare in patients who have had the disease for any length of time or long enough to have induced them to seek institutional treatment. In my service at the Riverside Hospital Sanatorium, where we take care of more than 300 cases in the second and third stages of the disease, I do not believe that we have a single individual where the tuberculous lesion is absolutely confined to one side. Most of the cases I have seen operated in or have operated in myself have had bilateral lesions, and as far as immediate symptomatic improvement is concerned, every one of them showed gratifying results.

Casts and albuminuria are not necessarily a contraindication, but, of course, one must be guided by the general condition of the patient. When the lesion of the less affected side is a basal one, some authorities consider this a contraindication. In the opinion of Doctor Lapham, who has perhaps had a larger experience in this kind of work than any other physician in the United States, this condition is not an absolute contraindication, and the production of artificial pneumothorax is permissible because of the relief which it gives to the patient.

There are, of course, decided contraindications to the production of artificial pneumothorax:

First, an extensive involvement of both lungs.

Second, when there is so much cavitation in the affected lung that there is danger of the needle entering a cavity.

Third, dry pleurisy or pleurisy with effusion.

Fourth, myocarditis, other serious cardiac complications, or serious renal complications.

Fifth, any pulmonary tuberculosis complicated by any constitutional disease which in itself is sufficient to inhibit all possible chances of recovery.

*Read before the Section in Medicine, New York Academy of Medicine, February 18, 1913.

Sixth, when the patient, in no matter what stage of the disease, is too apprehensive and strongly objects to the performance of the operation, it should not be resorted to.

In conclusion, I wish to make a precautionary statement. That artificial pneumothorax is a valuable adjuvant in the treatment of pulmonary tuberculosis is now an established fact. Such men as Forlanini (1), Spengler (2), Brauer (3), Saugman (4), and others of Europe; Murphy (5), Trudeau, Baldwin, James Alexander Miller, Lapham (6), Robinson (7), Floyd (7), Balboni (8), Hamman (9), Sloan (9), and many others in our own country have given it the stamp of an authoritative procedure. Yet, in view of the possibility of an accident (not necessarily in the primary filling, for experience has shown that they most likely occur in subsequent fillings), every practitioner should protect himself by procuring the written consent of the patient, parent, or guardian before resorting to the operation.

There are various accidents that may occur, such as air embolism, cardiac or pleuritic shock resulting in failure of respiration, spasm of the glottis, aphonia, and inability to cough. Hemorrhage or subsequent neuritis, owing to the injury of a bloodvessel or nerve, may also occur. Pleurisy with effusion has also been reported in a number of cases resulting from artificial pneumothorax (10). Emphysema, though more annoying than dangerous, is also an occasional complication. Weiss (11) reported a case of fatal pneumonia in the other lung, notwithstanding that nitrogen was withdrawn.

There is no question in my mind that, with the view of avoiding the various accidents as far as possible, the technic can be much improved, the operation made even safer than it is already, and the subsequent fillings made absolutely without danger. It is owing to the genius of my coworker and friend, Dr. Mary E. Lapham, of Highlands, N. C., that the idea of a permanent opening in the chest cavity for the purpose of refilling was suggested to me. Being somewhat apprehensive of the possible complications arising from a permanent opening in the chest, we sought the advice of a man who is considered the master of experimental surgery, Dr. Alexis Carrel, of the Rockefeller Institute. We also took counsel with Professor Franz Torek, of the Post-Graduate Medical School, surgeon of the German Hospital, and obtained the valued advice and guidance of Dr. Thomas A. Smith, the surgeon of the Bellevue, Willard Parker, and Riverside Hospitals. Although fully aware of the difficulties which beset us, with the advice of the men with whom we have been able to counsel, and particularly Doctor Smith, who has promised us his continued cooperation, we hope to be able to report progress ere long.

One cause of accidents in primary as well as subsequent fillings can, I believe, be avoided. I refer to the distress which the patient sometimes feels, manifesting itself in anxiety, intense dyspnea, or cardiac pains and which is due to the expansion of the nitrogen which had been injected at the temperature of the room. The much higher temperature of the thoracic cavity causes the gas to increase

considerably in volume. To do away with this accident I suspend a coil of metal tubing over an alcohol lamp through which tubing the nitrogen gas is passed before it enters the pleuritic cavity. I have heard of pneumonia being produced by the inhalation of cold oxygen, hence I would also suggest that when oxygen is chosen for the gas to be injected for the production of artificial pneumothorax, it should be passed through a heated coil of metal tubing, after extinguishing of course the alcohol flame to avoid any possibility of explosion.

I am willing to confess that up to about a year ago I was thoroughly skeptical about the immediate as well as about the ulterior results of artificial pneumothorax as an addition to our armamentarium in phthisiotherapeutics; but what I have heard, seen, and learned during the past months concerning this procedure, while it has not made me so wildly enthusiastic as to consider it a cureall, has convinced me that artificial pneumothorax will often help when all other means have failed. I consider that all those who have the cause of the consumptive sufferers at heart cannot feel too grateful to the pioneers in this field because they have given us a means of lessening the sufferings of tuberculous invalids, rendering them comfortable and free from many distressing symptoms, and in not a few instances bringing about an arrest of the disease.

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16 WEST NINETY-FIFTH STREET.

ARTIFICIAL PNEUMOTHORAX.*

Technic and Results.

BY MARY E. LAPHAM, M. D.,

Highlands, N. C.,

Physician, Highlands Camp Sanatorium.

When a tuberculous lung is well compressed by filling the pleural cavity with nitrogen, the distention of the cavity is shown by the bulging of the ribs, by the rotary breathing as if the other half of the thorax moved around a fixed point, and by a deep, hollow resonance which often extends well over on the other side.

This resonant, hollow, empty space is obtained at the expense of the lung, which is driven up into the smallest possible bulk and held there like a dried

*Read by invitation before the Section in Medicine, New York Academy of Medicine, February 18, 1913.

sponge, absolutely immobile and incapable of expansion. As the lung becomes smaller and smaller, the râles disappear and the breath sounds become suppressed or assume a metallic character, finally changing to the sound of a drop falling into a space surrounded by metal or to a sharp, metallic clink.

To all intents and purposes the lung is not there, but is practically removed, and while it is held firmly compressed connective tissue infiltration converts the tuberculous lesions into clean, healthy scars. In such an anatomical recovery there is nothing to cause a relapse. At the autopsy nothing is seen but scars. There are no tubercle bacilli threatening resumption of activities, no tuberculous foci shut up in encapsulated areas. All is clean and safe and corresponds to the physical signs given after recovery and reexpansion of the lung. *A priori*, it seems unlikely that any portions of the lung that had been destroyed could be replaced, and yet after reexpansion normal resonance and breath sounds have appeared in lungs in which before compression nothing but râles and altered breath sounds could be heard. In several instances I have found it difficult to detect any difference between the reexpanded and the other lung. It seems to be proved beyond question that compression of the lung does not injure the normal portions and that the diseased portions are singularly benefited.

The clinical results are no less marked than the physical. As the pressure of the nitrogen crowds up the lung, the decomposing masses are forced out through the mouth, so that, at first, there may be pain, higher temperature, increased coughing, and expectoration. As the bloodvessels become compressed the lung gets drier and there is less production and absorption of toxins. A dry lung with little circulation of air or fluids does not favor the growth of tubercle bacilli. As their activities are extinguished, the expectoration lessens and the temperature falls. In typical cases all signs of disease in the lung disappear. There is no more high temperature or cough or expectoration of tubercle bacilli, and after about a year it is safe to allow the lung to reexpand and resume its function.

Balboni says: "It is absolutely essential for the success of the treatment that the pneumothorax be maintained of such a volume and tension so as to squeeze out and practically dry the lung of all secretions." The maintenance of this volume and tension is the key note to success and is therefore the main point of technic discussed in this short paper.

If dullness and altered breath sounds persist over any part of the lung, we know that adhesions are preventing its compression. In using pressure to break up these adhesions we must avoid the too sudden application of too much force, or we may tear a bloodvessel in the adhesions, or pull away the surface of the lung where these adhesions are attached, or we may force the thin surface of the lung inward over a cavity until it breaks. Many cases reported as failures because of empyema or pulmonary fistule or tension pneumothorax, might be explained in this way. Later on, the condition of the other lung may forbid too much nitrogen in the pleural cavity.

The pressure of the atmosphere over all the other bloodvessels in the body and the absence of this

pressure in the thoracic cavity make a powerful mechanism for favoring the return of blood to the heart. As soon as the returning blood gets inside the thorax it relieves the rest of the circulation of just so much pressure. When the nitrogen in the pleural space presses upon the mediastinum and the returning bloodvessels, one of the most important factors in the mechanism of circulation is injuriously affected. Too much intrathoracic pressure impedes the return circulation and threatens stasis of the gastrointestinal circulation which may cause insomnia, anorexia, cardiac distress, neurasthenia, hysteria, and a host of other troubles. The other lung may become so congested as to cause wet râles and frothy sputum, and this edematous infiltration must be relieved by reducing the intrathoracic pressure, or bronchopneumonia may result.

Trouble with the other lung may not develop until several days or even weeks have elapsed. For some time its bloodvessels may stand the strain of all the blood passing through them, and we often read that the patient did well up to such a time when the other lung broke down and the recovery was lost. The other lung needs constant examinations to detect the first signs of an edematous infiltration.

Chilling and too much exercise must be carefully avoided until it is certain that the other lung is not concealing a hidden, deep lesion or peribronchitic infiltration which does not manifest itself by physical signs until too late.

If we do not apply enough pressure to break up the adhesions around a cavity or the surface of an upper lobe, we know that we are losing our efforts and accomplishing nothing because the dullness and breath sounds persist. To keep up enough pressure to extend the resonance without injuring the patient is the problem.

In these cases we have found the daily estimate of what is needed and the daily injection of enough nitrogen to meet these needs to be the most satisfactory way of overcoming the difficulties. As the nitrogen is absorbed and the dullness returns, we replace it by the resonance of nitrogen. In this way we have succeeded, with infinite pains and time, in compressing the lung and breaking up adhesions that were seemingly invincible.

A fine hypodermoclysis needle is preferable to a large needle in these cases. In severe bilateral cases with great general exhaustion and poor condition of the heart and other lung, we have found the use of oxygen instead of nitrogen to be of great benefit.

When nitrogen causes dyspnea and cardiac distress, oxygen may give the same relief that the introduction of an intubation tube does to a child struggling for breath. There is a sensation of ease and well being, and the patient goes to sleep very much as the child does.

After the insertion of the tube the use of oxygen promises to extend the usefulness of the method to cases too difficult for nitrogen because it has a tonic, strengthening influence instead of the depressing one of nitrogen.

As Doctor Knopf has stated, most of the accidents have occurred after the first injection of nitrogen. It is for this reason that we have labored during the past few months toward bringing about a safe

method for a permanent opening into the pleural cavity and have sought the best surgical council we could obtain. With Dr. Thomas A. Smith's guidance and cooperation in the work here in New York, and our continued experimentation in Highlands, Doctor Knopf and I hope soon to be able to report progress.

I cannot close this short paper without expressing most grateful appreciation of the courtesy extended to me by Professor Hermann M. Biggs, the general medical officer of the department of health, and to Professor S. Adolphus Knopf, senior physician of the Riverside Hospital, for giving me the opportunity of seeing, studying and working in the Municipal Sanatorium at Otisville and the Riverside Hospital of New York.

HIGHLANDS CAMP.

SHORTENING THE UTEROSACRAL LIGAMENTS

*By the Vaginal Route in Procidentia uteri with a Report of Ten Cases.**

BY HERMANN GRAD, M. D.,

New York,

Assistant Surgeon, Woman's Hospital.

The various degrees of procidentia uteri, whether first, second, or third, have the same etiological factors. In the parous woman the conditions are the same as in the nulliparous, but the prolapse in the former has been brought about by different agencies than in the latter. In both types of prolapse the cause remains the same, namely, the failure of action of the normal uterine supports. In the parous woman, the integrity of the ligaments becomes destroyed by traumatism, hence loss of function; while in the nulliparous woman, the uterine supports fail to function because the ligaments supporting the uterus and annexa have not developed sufficiently to take up the proper function. In one case we have traumatism, while in the other we have a lack of development of the uterine supports as a cause of the uterine prolapse. Doubtless in many cases both causes are operative in bringing about a condition of prolapse.

THE LIGAMENTS.

The female generative organs are maintained in the pelvis by virtue of their ligaments. They are so well known that they need but a mere mention. They are the broad ligaments, the round ligaments, the uterosacral, and the vesicouterine ligaments. Besides, there is another ligamentous structure of great importance in maintaining the uterus in a normal position in the pelvis. This structure is not a ligament, but a fascia. Extending from the bony pelvic frame, it bridges the pelvic cavity and gives support to the contents of the pelvis. It gives support to the bladder, the rectum, the female generative organs, the bloodvessels, lymphatics, and nerves. The fibres of this fascial structure mingle with the fibres of the fascia of every muscle in the pelvic diaphragm. Mingling as it does with the fascia of the muscles composing the pelvic dia-

phragm, it becomes a very strong fibrous structure of great functional integrity and considerable elasticity. It is this fascial structure, designated as the pelvic fascia, that holds the uterus in its normal position in the pelvis. The aforementioned ligaments determine more the position of the organ, as well as contributing partially to the support of the uterus. Their functions may be summarized as follows: The round ligaments act as guy ropes, preventing a retrodisplacement of the fundus of the uterus, and when the fundus has become displaced by a distended bladder, it is the function of the round ligaments to antevert the organ again into a normal position. The uterosacral ligaments maintain the cervix in a fixed position, contributing largely in holding the uterus in a state of anteversion. These ligaments are also important points of support of the uterus. The broad ligaments determine the position of the uterus laterally. They give little or no support to the uterus, but they lend protection to the bloodvessels and lymphatics of the pelvis, and in addition, hold the Fallopian tubes and ovaries in a physiological position in the pelvis.

THE PELVIC FASCIA.

That the pelvic fascia is the structure of great importance in holding the uterus in position in the pelvis can be readily demonstrated on the operating table in doing a hysterectomy. It is in the experience of every gynecologist that after the broad ligaments have been severed, the round ligaments tied off, the uterosacral ligaments cut away, the uterus still maintains a perfectly normal position. It is because the pelvic fascia has not, as yet, been severed. Witness the strong fascial attachment that is encountered in clamping off the parametrial tissues, in performing a Wertheim operation for carcinoma of the uterus. After the ureters have been laid bare and isolated from the parametrium, the bladder dissected up from its bed, the uterus remains in perfect position because the pelvic fascia has not been disturbed. The vagina, alone, does not prevent the uterus from being drawn up, but the pelvic fascia does. So soon as the parametrium is clamped and severed, the uterus and vagina can be drawn up and the curved vaginal clamps readily applied.

In every case of procidentia, whether partial or complete, this pelvic fascia has suffered a loss of its integrity. This loss of integrity may have resulted from traumatism or lack of development. During parturition, the pelvic fascia must of necessity be subjected to considerable traumatism. This is the case even in physiological labor. In pathological labor it may be greatly increased. Traumatism of the pelvic fascia in labor is the great cause of procidentia. Prolapse of the uterus, however, depends on many other factors beside that of traumatism of the pelvic fascia. It will depend also on the functional integrity of the other uterine ligaments enumerated. The pelvic fascia may suffer a considerable degree of traumatism, yet no prolapse of the uterus will result, because the integrity of the uterosacral, round, and broad ligaments has not been destroyed. The uterosacral ligaments and the round ligaments still hold the uterus in a state of physiological anteversion, and intraabdominal pressure cannot come into play to destroy normal phy-

*Read before the Section in Obstetrics of the New York Academy of Medicine, January 27, 1913.

biological relations. Intraabdominal pressure is an important factor in the causation of the prolapsus of the uterus. Once the uterine ligaments permit a retrodisplacement of the uterus, the intraabdominal pressure comes into play and favors conditions which result in a prolapse.

THE VESICOUTERINE LIGAMENTS.

Attention must also be called here to that part of the pelvic fascia which is designated by anatomists as the vesicouterine ligaments. This part of the fascia, in addition to that of giving support to the uterus, has the function of serving as a shelf upon which the trigonum of the bladder rests. A cystocele will result if this part of the pelvic fascia is destroyed. As a rule, when this part of the pelvic fascia has suffered destruction, other parts of the fascia have also been so severely traumatized as seriously to interfere with its function as a whole. Nevertheless, there are many cases where only the vesical portion of the fascia becomes weakened or

to the stimulus by a powerful contraction, thereby aiding the uterine ligaments and preventing their overstretching. When the perineum is not functioning, having been destroyed by traumatism, the increased intraabdominal pressure has to be overcome by the ligaments alone, and after some time, these structures will finally give way, and prolapse of the uterus will result. It is for this reason that in every case of procidentia the perineal body needs attention, and when destroyed, its restoration of function by surgical means is an important step in the cure of procidentia uteri.

THE CERVIX.

The cervix plays no inconspicuous rôle in prolapsus uteri. By its laceration, the pelvic fascia suffers from traumatism and loss of function, depending on the extent of the injury. If the laceration in the cervix has been deep, extending into the layers of the broad ligaments, perhaps, the pelvic fascia will also suffer injury and loss of function.

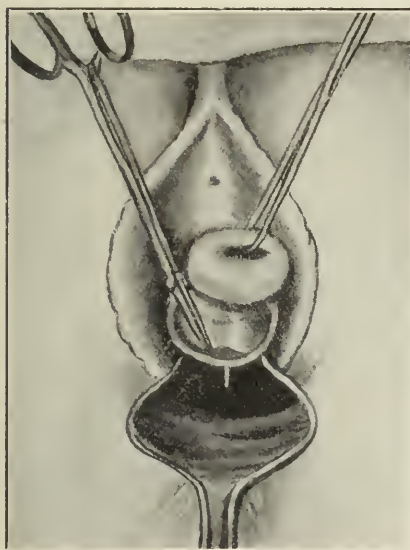


FIG. 1.—Circular incision of the cervix; uterosacral ligaments clamped off on right side.

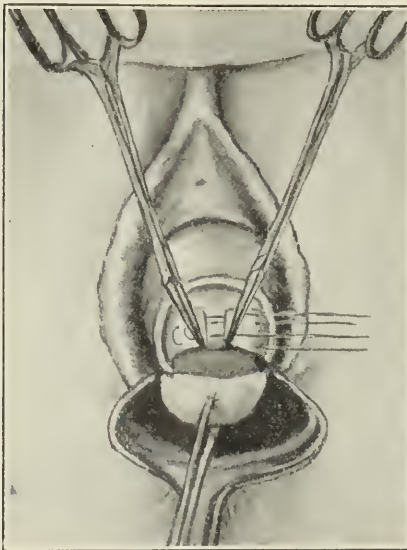


FIG. 2.—Uterosacral ligaments brought around the cervix; sutures introduced.

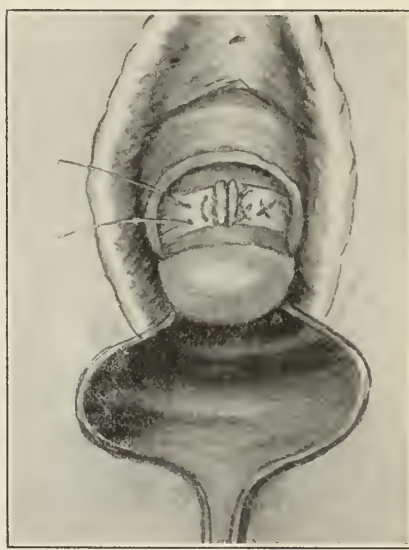


FIG. 3.—Uterosacral ligaments sutured to the cervix in front.

destroyed with the formation of a cystocele alone. Here, again, intraabdominal pressure comes into play as a cause of the cystocele.

THE PERINEUM.

We have still another point to consider with conditions which favor the occurrence of prolapsus uteri. It is the so called perineal body, whether it is functionally integral or not. The perineum has nothing to do with the support of the uterus, but it has a tremendous effect on the ligaments that support the uterus. The perineum is essentially a musculotendinous body capable of powerful muscular contraction. By its contraction it gives support to the ligaments which hold the uterus in position, preventing their possible overstretching during moments of increased intraabdominal pressure.

During the act of coughing or sneezing, or during the acts that increase intraabdominal pressure, the uterus and all the contents of the pelvis are forcibly pressed downward. During these moments, the perineum is reflexly excited and responds

If the laceration in the cervix is of a moderate degree, the pelvic fascia may escape injury entirely.

The cervix plays also an important rôle in the surgical treatment of prolapsus. In an amputation of the cervix, the very nature of the operation is such as to tend to restore the continuity of the pelvic fascia which has been severed by the laceration in the cervix. In decades gone by, when prolapsus uteri was treated by an amputation of the cervix, plastic operations on the anterior and posterior wall of the vagina, the success which attended these operative efforts depended very largely on the fact that the pelvic fascia was restored by the amputation of the cervix. It is essential, therefore, in the surgical treatment of procidentia, to restore the laceration in the cervix by union, or else to amputate the cervix entirely.

SHORTENING THE UTEROSACRAL LIGAMENTS.

Having briefly outlined our conception of the normal uterine supports, and how they are affected in procidentia, I shall endeavor to bring to your

attention an operation on the uterosacral ligaments which finds a fertile field of application in many cases of prolapsus uteri. This operation of vaginal shortening of the uterosacral ligaments was described by Dr. Henry Jellett, of Dublin, and published in *Surgery, Gynecology, and Obstetrics* in August, 1911, page 206. The cuts are also from his paper. In his paper, Doctor Jellett says: "In general terms, the operation consists in exposing the uterosacral ligaments at their insertion into the uterus, in cutting them off the uterus, and in bringing them round in front and below the cervix, and at the same time shortening them, as may be found necessary, so that they become again a support to that part of the uterus."

Vaginal shortening of the uterosacral ligaments is an operation that deserves consideration in the practice of gynecology. It is an operation that can claim for itself a definite anatomical basis. Although the operation disturbs the normal anatomical relations because it brings the ligaments in front of the cervix, whereas, normally, they are behind; nevertheless, the operation accomplishes just the condition we wish to bring about in prolapse of the uterus.

Contrary to the views of the older anatomists, the uterosacral ligaments are not purely peritoneal folds, but have firm fibrous tissues as their structural integrity. These ligaments are folds of tissue of firm consistence, capable of maintaining considerable pressure and weight. They are doubtless one of the important ligaments that support the female generative organs. The uterosacral ligaments are a part of the so called transversalis fascia, which lines the abdomen and the pelvic cavity everywhere. These ligaments maintain the cervix of the uterus in a position in the pelvis best suited for the maintenance of a condition of anteversion of the uterus. Arising from the bony pelvic floor on either side of the sacrum, they gently curve toward the median line and are inserted in the posterior surface of the cervix, where they become mingled with the connective tissue of the uterine wall. The fibres of the fascia, extending around the cervix, completely encircle it and thus form a firm ligamentous attachment, which supports the uterus with its annexa. The uterosacral ligaments are not thin ligamentous structures, cordlike in appearance, as they are seen when the abdomen is opened, but they are really parts of the fascial structure, which is flattened out and includes within itself all the muscular structures that make up the so called pelvic diaphragm. It is true that when the abdomen is opened and the uterosacral ligaments are seized with forceps or spongeholders, they merely appear as folds of peritoneal tissue, which is endowed with considerable elasticity. In reality, these folds are only the edge of a strong fascial sheet which extends in a circle about the pelvic floor and sends filamentous structures to the sheets of the muscles of the so called perineal body. In front of the uterus this same fascial sheet forms a so called vesicouterine ligament, upon which is stretched out the bladder trigonum.

Picturing in one's mind the fascial sheet which extends from the bony structure of the pelvis and completely encircles the uterine cervix, it will be

readily seen that if this fascial sheet, having become overstretched or torn in parts, is shortened by some operative procedure, it will of necessity raise those organs to which it is attached to a higher level. This is exactly what is being done by the so called shortening of the uterosacral ligaments. In shortening up these ligaments, we must bear in mind that not alone are these ligaments shortened, and thereby made tense at the free border, but the entire pelvic fascia is shortened thereby and made more tense.

There has been a great diversity of opinion expressed about the histological structures of the so called uterosacral ligaments. According to some, these ligaments are nothing more than two layers of peritoneum, lying on a basement membrane. Others maintain that fibrous structures are found in these apparently peritoneal folds. Still others hold that the uterosacral folds contain muscular fibres and connective tissue. Dr. Berry Hart says (*Allbutt's System of Medicine*): "The uterosacral folds are two ridges of peritoneum inclosing muscular fibre and connective tissue; they pass one from each side of the isthmus uteri, outward and backward toward the second and third sacral vertebrae." Deaver (*Surgical Anatomy*) says: "The uterosacral ligaments are flat muscular bands, which extend from the uterus at the level of the internal os, beneath layers of the rectouterine ligaments, to the sides of the sacrum, opposite the lower borders of the sacroiliac articulations. In the first part of their course, they are in relation with the lateral walls of the pouch of Douglas and finally run on either side of the rectum, near the junction of the sigmoid and the upper portion of the rectum."

It is very evident that conflicting are the views held at present about the structure of the uterosacral ligaments. It is very clear that histological studies are wanting on the ligaments of the uterine supports.

If muscular fibres are present in the uterosacral ligaments, they must be so scarce in amount as to escape recognition. I have not been able to satisfy myself of their presence. Reasoning from analogy, I cannot see why the uterosacral ligaments should contain muscular fibres. The function of muscular tissue is not that of support. It would be waste of energy to assume that function. The supporting structure in the animal economy is always of the nature of fibrous tissue. Fibrous structure is endowed with two important properties, great tensile strength, and great elasticity. Muscular fibres have entirely different properties, hence different functions. The great tensile strength and elasticity of ligamentous structure is well adapted for the function it assumes in supporting the uterus and its annexa. When the uterosacral ligaments are acting normally, and the uterus is in normal position of anteversion, with every inspiration, on account of increase in the intraabdominal pressure, the uterus descends to a lower level in the pelvis than it finds itself during the period of quiescence. The uterosacral ligaments allow this descent of the organ, which they support by virtue of their elasticity. At the end of inspiration, intraabdominal pressure ceases to act, and the uterus and annexa rise again

to their normal level by virtue of the elasticity of the uterine supports. This is the reason why we see an up and down excursion of the anterior wall of the vagina synchronously with inspiration and expiration, with a patient in the Sim's position and with the perineum retracted with a Sim's speculum.

THE SURGICAL TREATMENT OF PROLAPSUS UTERI.

The surgical treatment of prolapse of the uterus has changed materially in recent years, and to-day the operations that are performed for the cure of this condition can be divided into two classes:

1. Those operations having in view the formations of adhesions of the uterus to other parts in such a way as to hold the organs in the pelvis and prevent a prolapse out of the vagina.

2. Those operations which shorten the uterine supports and in that way keep the organ from prolapse.

Both types of operations find application in prolapse of the uterus. The multiplicity of the operations that have been recommended for procidentia simply attest the fact that no one single operation is applicable in every case of procidentia. There are doubtless cases of procidentia uteri that will yield very readily to so simple an operation as that of ventrofixation. Then there are other cases where this operation will accomplish absolutely nothing. Cases of procidentia may also be divided as far as the surgical aspect is concerned into two classes:

1. The cases that are past the menopause.
2. Cases that are still in the menstrual period.

For the class of patients that are past the climacteric and have uteri that are small and have undergone the changes incident to the menopause these will yield readily to the so called interposition operation. The fundus of the uterus is attached under the pubic arch, the bladder having been stripped up and made to rest on the posterior surface or on the fundus of the uterus. As a rule, a cure is effected in these cases by this simple operation. When the uterus is enlarged, either by neoplasm or inflammatory changes, the operation of interposition is not applicable; because, on account of the size of the uterus, it cannot be made to remain under the pubic arch, where the operation places it. In these cases a hysterectomy is called for, and the broad ligaments are made to serve the purpose of a shelf, upon which the bladder is made to rest, and to which the vaginal tissues can be attached.

In many cases where the uterus harbors one or more fibroid tumors, a myomectomy may be performed first, and the uterus then interposed, or a wedge of tissue can be removed from the uterus and the remainder of the organ used for the interposition operation.

In patients still menstruating, or in the child-bearing period, the operation of shortening the uterosacral ligaments is very applicable. The operation is performed as follows:

A circular incision is made around the cervix, as in a vaginal hysterectomy. This incision is met by a vertical one in the median line on the anterior wall of the vagina. The bladder is stripped up freely. If the operator chooses to shorten the round ligaments at the same time, he may do so by entering the peritoneal cavity in front of the uterus. The round ligaments are seized and shortened in an

appropriate manner, after which the peritoneum is closed, anteriorly or not, just as the surgeon chooses. The bladder, having been stripped up from anterior wall, the latter is trimmed to a desired extent in order to repair the cystocele that has existed. Before the final closure of the incision in the anterior wall of the vagina, search should be made for the so called pelvic fascia, which will be readily identified. This fascia is stitched with a few interrupted chromic gut sutures, making a shelf for the bladder to rest on. This part of the operation having been completed, a search is now made for the uterosacral ligaments, which can be found readily, in the majority of cases, by grasping the loose tissue behind the cervix. This tissue is severed from the cervix, and by a little dissection the uterosacral ligaments are identified. Should this procedure fail in finding the uterosacral ligaments, the peritoneum may be opened posteriorly and search made for the ligaments by palpation. Once they are located, they can be traced to the cervix and loosened up sufficiently to reach around the uterus and be stitched to the cervix in front. The uterosacral ligaments, having been prepared, the cervix is amputated. The degree of amputation will depend on the length of the cervix. If the cervix is short, only a small portion is removed, and if it is long, a larger piece will need to be amputated. The cervix, having been amputated, the uterosacral ligaments are then stitched in such a manner as to become attached to the anterior surface of the cervix. The effect of this is that the cervix is drawn backward toward the sacrum by the shortened up ligaments, which becomes very apparent during the operation. If the cervix is not drawn back by the ligaments, the operator may be assured that the uterosacral ligaments have not been properly identified. The ligaments having been attached, as described, the cervix is covered with a flap of vaginal tissue as in any ordinary operation for amputation of the cervix. The anterior wall of the vagina is now closed in the usual manner, and the case is ready for the restoration of the peritoneum and cure of the rectocele.

In my hands the perineal restoration is best accomplished by the so called Watkins-Haynes operation, which consists of stripping up the posterior vaginal wall from the rectum, laying bare the levator ani and transversus perinei muscles. These muscles are then stitched together in the median line. The redundant posterior vaginal wall may be removed in any manner, shape, or form the surgeon wishes, after which the perineal body is closed, as is done in the Emmett operation.

The operation of shortening the uterosacral ligaments by way of the vagina is not a difficult one, and as a rule is readily performed. The ligaments are easily found, and no difficulty will be encountered in attaching them firmly to the cervix of the uterus. In some cases, however, their identification is not made so readily. The result of this operation is surprising; it raises the uterus at once to its proper level, anteverting it to a degree which varies with each case. In some cases the anteversion of the uterus is very marked and in others it is so to a less degree.

I have been pleased with the result of this opera-

tion, and take pleasure in reporting my first ten cases that you may judge for yourself the success with which this operation is attended:

CASE I. Mrs. R. G., aged thirty-one years, married thirteen years; has had four children; the last child two years ago. She was suffering with a complete prolapse of the uterus. The cervix was deeply ulcerated. There had been a complete prolapse since the birth of her last child. She got about with difficulty. She was admitted to the Woman's Hospital and operated upon in January, 1912. On account of the age of the patient, being in the childbearing period, and anxious to have children, I decided to submit her to the operation of shortening the uterosacral ligaments described and so ably presented to us by Doctor Jellett, of Dublin. The following operation was performed: Circular incision of the cervix; uterosacral ligaments clamped off and cut away from the uterus; Vertical incision of the anterior wall of the vagina in the median line from the meatus urinarius, down to the cervix; bladder freely dissected up; under the dissected up flap of the anterior wall of the vagina, deep sutures were inserted to approximate the pelvic fascia anterior to the uterus, so as to form a shelf for the bladder to rest upon; the cervix was then amputated low down; uterosacral ligaments were then sutured to the cervix in front; the anterior wall of the vagina trimmed away, and closed up with interrupted chromic gut sutures. The operation was finished by repairing the lacerated perineum by the Watkins-Haynes method.

The patient made an uneventful recovery from the operation and was again seen in May, 1912 at which time the following note was made about her condition: Anterior wall of the vagina was in normal condition, no bulging, except to a very slight degree near the meatus. Cervix pointed backward into the hollow of the sacrum. Uterus was anteverted, fundus plainly palpable behind the pubes. Anterior and posterior walls of vagina were in close contact. She was again seen in October last, and her condition found satisfactory. The operation of shortening the uterosacral ligaments proved in her case, a most satisfactory one in curing her of prolapsus uteri of the third degree.

CASE II. Young woman, aged twenty-three years; admitted to the Woman's Hospital, April 22, 1912. She was married only one year, and had a child seven months before admission to the hospital. She had a complete third degree of prolapsus, with a very large cystocele. Her cervix was badly lacerated. The operation consisted in a longitudinal incision of the anterior wall of the vagina, freely dissecting up of the bladder wall; pelvic fascia sutured with chromic gut; low amputation of the cervix; uterosacral ligaments shortened, and sutured to the anterior face of the cervix; the perineal laceration repaired by the Watkins-Haynes method, with the removal of the redundant portion of the posterior wall of the vagina. Uneventful recovery followed the operation. Before leaving the hospital, an examination showed that the uterus was in good position, that the anterior and posterior walls of the vagina were in contact. The procidentia was cured. She was not seen but she was heard from, and reported herself cured of the prolapsus.

CASE III. Woman, forty-two years old; nineteen years married, and had six children. She had a third degree of prolapse with lacerations of cervix and perineum and cystocele. Her operation was the same as in the previous case. The uterosacral ligaments were shortened, the cervix amputated, the perineum repaired and relieved of the cystocele by dissecting up the bladder wall from the vagina, and coaptating the pelvic fascia so as to form a shelf for the bladder to rest on. The operation proved a success in her case and her physician reported recently that the patient had remained well up to date.

CASE IV. Woman, thirty-nine years old, also married nineteen years and had six children also. She had a second degree of prolapse, laceration of the cervix and perineum. The uterosacral ligaments were identified and dissected out and shortened under some difficulties. The peritoneal cavity had to be opened posteriorly and the uterosacral ligaments traced from the sacrum outward. She had a deep, narrow vagina restricting the space for manipulation. The cervix was amputated and the perineum repaired. The mild degree of cystocele was also attended to at the same time. The operation resulted in

a cure of the procidentia, and when the patient left the hospital, the uterus was found in good position, although not anteverted as completely as in some of the other cases.

It is to be noted here that the resulting anteversion of the uterus following this operation of shortening of the uterosacral ligaments varies greatly with each case. In some cases the position of the organ is ideal; in others the anteversion is not complete; and still in others the uterus may have a tendency to a partial retroversion. But be it observed also that in all cases of shortening of the uterosacral ligaments, the uterus is prevented from prolapse by raising the organ to a high level in the pelvis.

CASE V. Very large, fleshy woman, forty years old, married twenty years, and had seven children. She had a third degree of prolapsus, a very large cystocele, a moderate rectocele, and a very badly lacerated cervix. The prolapsus made its appearance five years ago. She was admitted to the Woman's Hospital and was operated upon last July. The anterior wall of the vagina was widely opened up and the pelvic fascia was as carefully coaptated as possible. In dissecting out the uterosacral ligaments, it was found that the right one was much longer than the one on the left. A very high amputation of the cervix was performed, because it was intended to make the uterus as light as possible. A perineorrhaphy of the Watkins-Haynes type completed the operation. A smooth recovery followed, and the results were most excellent. After the parts were thoroughly healed, the uterus was found in a fair degree of anteversion and firmly anchored in the pelvis.

CASE VI. Thin, wiry woman, of forty-three years, married twenty-three years, and had four children. She had a complete prolapsus, vagina completely everted with a hernia of the entire contents of the pelvis. Cervix was badly lacerated, and the perineal body was completely destroyed. In this case, the operation of shortening of the uterosacral ligaments received as severe a test as was possible, because all ligamentous moorings of the uterus were gone. The operation proved a success in her case. A very extensive operation had to be performed, because of the completeness of the prolapse and extensiveness of the hernia. The dissection on the anterior wall of the vagina was very extensive, in order to liberate the bladder wall; the amputation of the cervix was moderate. The uterosacral ligaments were found with some difficulty. The peritoneum had to be invaded in their search but when found, they proved very serviceable. A Watkins-Haynes type of perineal restoration, followed by an Emmett butterfly operation on the posterior wall of the vagina completed the work. Before the patient left the operating table, an examination disclosed that the uterus had resumed a condition of anteversion in the pelvis. An uneventful recovery followed the operation.

The patient was examined at my office three days ago and the following conditions were found: Inspection showed a normal looking introitus; no signs of any prolapse on bearing down; anterior and posterior walls of the vagina were in contact; on palpation cervix was plainly felt; it was in good condition. About half of the cervix was still present; the uterus was firmly moored in the pelvis; the fundus was not completely anteverted; there was no tenderness in the pelvis, and the patient considered herself cured. In this case, the operation certainly accomplished everything that could be desired.

CASE VII was of a very interesting patient, operated upon eight months before admission to the hospital, at another institution. She was thirty years old, married twelve years, and had one child. Her prolapse was of the third degree, with complete eversion of the vagina and hernia of the pelvic contents. Her first operation for procidentia had completely failed. Being obliged to support herself, and unable to do so on account of her infirmity, she was greatly distressed in mind, and skeptical about the result of a second operation. Her cervix had been partially amputated and the perineum repaired. Evidently nothing was done to her cystocele at the previous operation, because no scar was visible on the anterior wall of the vagina.

The operation performed on her was the same as described in the previous case. The uterosacral ligaments were located and dissected out with some difficulty, and on account of the previous amputation of the cervix, an extreme degree of shortening of the anterior and posterior walls of the vagina resulted. The Jellet operation proved a success in her case, and I never had a more grateful patient. She came to my office last month, and on examination I found the uterus securely moored in the pelvis with no tendency to prolapse. The uterus was not completely anteverted, even with the bladder empty, but was prevented from prolapse by the shortening of the uterosacral ligaments. The vagina was very short. Her menses were normal. She was free from pain and able to earn her living as a house maid.

CASE VIII. Woman, forty-three years old, married eighteen years, and had five children. She had a second degree of prolapsus and stated that her prolapse was only of six months' standing, although for many years a prolapse showed itself on the slightest provocation or at straining at stool. She also had a small fibroid in the posterior wall of the uterus. Her operation consisted in making an incision in the anterior wall of the vagina, dissecting up the bladder, incising the peritoneum in the anterior cul-de-sac, delivering the fundus of the uterus into the vagina, so as to bring the fibroid into view. The tumor was then enucleated and the incision in the uterus sutured. The uterus was returned into the peritoneal cavity. The opening in the peritoneum was not closed. The pelvic fascia beneath the bladder wall was coaptated with buried catgut sutures. The uterosacral ligaments were then shortened, the cervix was amputated, the cystocele repaired, after which the closure of the perineum completed the operation. The operation accomplished all that could be desired.

CASE IX was, to me, an unusually interesting case. It was that of a nulliparous woman, twenty-four years old, had a second degree prolapse with an overstretching by intact hymen. The prolapse occurred very suddenly and although the uterus was repeatedly replaced, the prolapse recurred. As is usual in these cases, she had an elongated cervix, but not excessively so.

I determined to shorten the uterosacral ligaments in her case. A painful McBurney point also called for the ablation of her appendix. The operation in this case, consisted in a circular incision of the cervix, laying bare a generous portion of the cervix, dissecting out the uterosacral ligaments, bringing them around the cervix and attaching them to its anterior surface. The circular incision was then closed without amputating the cervix. The abdomen was then opened in the median line, and the appendix ablated. In this case, an opportunity was afforded me to see from above the success with which the uterosacral ligaments could be shortened from below.

The patient was placed in an exaggerated Trendelenburg position so as to afford a thorough inspection. The uterosacral ligaments stood out well, drawing the cervix toward the sacrum, and elevating the uterus. On account of the relaxed condition of the broad ligaments, and the round ligaments, it was deemed advisable to shorten the latter one, and accordingly I performed a Webster-Baldy operation, fully to antevert the fundus of the uterus. A smooth recovery followed the operation. The patient was seen a short while ago, and her condition was most satisfactory.

CASE X. Woman, thirty-six years old, married fifteen years, and had five children. This patient noticed the procidentia four years ago. She had constant pain in the rectum. Her prolapse was of the second degree. A deep laceration of the cervix existed and a moderate degree of laceration of the perineum. She had but a mild extent of a cystocele. The cystocele was first attended to, the cervix was amputated, the uterosacral ligaments were easily located and shortened. The operation was completed by suturing together the torn parts of the levator ani muscle and perineorrhaphy.

The patient left the hospital in an excellent condition and as nothing further was heard from her, I believe she remained in good condition.

CONCLUSIONS.

The Jellet operation of vaginal shortening of the uterosacral ligaments in procidentia uteri deserves

a place among the carefully selected gynecological operations. It is based on definite anatomical basis.

The uterosacral ligaments are fascial sheets that are able to support the uterus and annexa in the pelvis.

The operation of vaginal shortening of the uterosacral ligaments is devoid of danger, can be easily performed, is practical in application, and brings desired results.

Vaginal shortening of the uterosacral ligaments is an operation that can be combined with other operations, such as shortening of the round ligaments. It is an operation that my experience and my good results with it permits me to recommend it most highly.

TABLE OF CASES.

	Hosp. No.	Date (1912).	Age.	Mar'd.	Child.	Degree of procidentia.
1	7424	January 26	31	12	4	Third
2	7971	April 22	23	1	1	Third
3	8107	May 14	42	19	6	Third
4	8367	June 27	39	19	6	Second
5	8390	July 1	40	26	7	Third
6	8411	July 8	43	23	4	Third
7	8440	July 7-12	30	12	1	Third
8	8663	August 26	43	18	5	Second
9	8731	September 19	24	Single Mar'd		Second
10	8906	October 9	36	15	5	Third

The operation was a shortening of the uterosacral ligaments in all cases except No. 8, in which a myomectomy was performed.

159 WEST 120TH STREET.

HOMOSEXUALITY.*

Its Psychogenesis and Treatment.

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The sexual aberrations in man, or the deviations from the normal sexual impulse, may be divided into two types, the inversions or deviations in relation to the sexual object, such as homosexuality, and the deviations in reference to the sexual aim, such as fetichism, sadism, and masochism. Both types are of great pathological and forensic importance. Since the inversion or rather the special types of homosexuality alone concern us here, we shall direct our attention to the analysis of these particular deviations. The clinical aspects of homosexuality were first noticed and fully dealt with in the publications of Krafft-Ebing, Moebius, Moll, von Schrenk-Notzing, and Havelock Ellis. While the work of these investigators served to clear up the general symptomatology of these disorders, it remained for Freud¹ and Sadger² to analyze the essential nature of the condition and trace out its psychogenetic roots in the sexual life of man.

Sexual inversion or homosexuality may be divided into the complete and incomplete types. In the complete inverts, the sexual object must always be of the same sex, while the opposite sex either does not at all stimulate the sexual craving or may actually arouse a feeling of disgust. In the incomplete inverts, the sexual craving may be manifested for both sexes indifferently, or only occasional episodes of inversion may occur, particularly when the normal

*Read before the New York Psychoanalytic Society, November 26, 1912.

¹S. Freud: *Drei Abhandlungen zur Sexual-Theorie*, 1910.

²Sadger: *Fragment der Psychoanalyse eines Homosexuellen*, *Jahrbuch für Sexual-Zwischenstufen*, ix, 1908.

sexual object is for the time being inaccessible. To the first class belong the true homosexuals or urnings, to the second those guilty of homosexual acts occurring for example among soldiers in camp or among sailors while on long sea voyages. In the complete inverts, or true homosexuals, the individual may actually fall in love with one of his own sex and in so doing experience the same emotions as in genuine, heterosexual love. Here the homosexuality is clear, while in the incomplete types, hidden mechanisms may mask the sexual perversion. Consequently, in these latter cases, true homosexual love does not exist, and the inverted sexual acts take place merely to satisfy a physical craving.

The inversion, however, contrary to the statement of Krafft-Ebing, is in my opinion never congenital. Although subjects will frequently state that they have been homosexual as long as they can remember, yet a psychoanalysis may demonstrate that the inversion originated through a definite unconscious mechanism which took place at some early period of the subject's sexual life. The fact that the origin of the inverted sexuality can be established only through a minute psychoanalysis will explain the earlier theories concerning a congenital origin of these disorders before the period that psychoanalysis began to be applied to these cases. Neither can the loose term degeneration be used to explain these conditions, because many homosexuals do not show the slightest evidence of what are usually termed degenerative stigmata, and furthermore, many so called degenerates are absolutely free from symptoms of inverted sexuality. In addition, among the ancients, homosexuality was a frequent manifestation and that at the highest period of Greek and Roman culture and civilization. We need only refer to the so called boy love of ancient Greece, which at that period was interpreted merely as an idealizing of ordinary sexuality. Concerning this tendency von Schrenk-Notzing states as follows:³ "From the way in which boy love first manifested itself in Athens and Sparta—when it was most intimately connected, during the golden age of Greece, with the greatest works of art and science, and that without endangering in any way masculine strength and activity displayed in numerous wars and in the games—it is clear that this was not yet a degenerative transformation of the man into a woman upon the basis of neuropathic disposition, even though sensual passion, frequently enough, may have surpassed the bounds of morality and law." The Greek poets sang of boy love and even in modern poetry, such as in the sonnets of Michel Angelo and of Shakespeare and in the poetry of Walt Whitman, homosexuality is idealized; surely in these cases it cannot be interpreted either as an evidence or as a manifestation of degeneration.

In addition, a homosexual, insane, or neuropathic heredity cannot be incriminated, because the condition appears just as frequently in those who are free from any hereditary taint. This does not imply that a neurotic makeup may not predispose to the unconscious mental mechanism which makes homosexuality possible of development.

If it can be proved that homosexuality is neither congenital nor transmitted through heredity, the prognosis for the cure of these conditions must be looked upon as far less gloomy than if the older theories are admitted, particularly so in the light of the recent advances in psychoanalytic treatment. In addition, sexual inversion cannot be interpreted as a "sport" form in the light of certain modern theories of heredity (DeVries), neither can it be compared with such congenital anomalies of the nervous system as color blindness or colored hearing, or the rather poetical but far fetched explanation of Ulrichs, that in sexual inverts a male body coexists with a female soul. Any sound explanation of homosexuality, it appears to us, must be based upon data which prove that the condition arose through an unconscious mental mechanism at some early period of the individual's sexual life. These data can be secured only through a careful psychoanalytic study of individual cases, and it is the purpose of this paper to present such detailed observations.

The modern theories of sexuality then will direct our attention to three possibilities of the development of the condition which may be secured through psychoanalytic investigation:

First, the theory of bisexuality in childhood in which one aspect of the sexuality through external influences or internal conflicts was developed and stimulated at the expense of the other; second, the unconscious development of a sexual fixation for the mother (Œdipus complex); and, third, as a type of compensation mechanism originating in adult life in a subject previously heterosexual. I am able to report cases corresponding to these three possibilities.

Of these, the development of the Œdipus complex is the most important. This Œdipus complex, as I have shown in a previous publication, may also be directly responsible for many psychoneurotic disturbances.⁴ This complex not only appears in the psychoneuroses, but also can be demonstrated in works of literature and art. For instance, it appears in *Hamlet*, in *Œdipus Tyrannus*, and in *Coriolanus*. The artist Segantini in some of his paintings showed this infantile erotic attitude toward his mother, thus demonstrating that he was never able to break completely away from the mother complex.⁵ The tenderness and femininity of some homosexuals is due to the maternal influence exercised during the childhood of the subject. The repression of the incest trend may be so associated in the unconscious with shame and guilt due to moral feelings that it becomes impossible for the subject to arouse his sexual libido with the opposite sex, because of this unconscious fixation. As a compensation the sexual feeling can be aroused only by the same sex, and thus the homosexuality arises. Masturbation in childhood with homosexual fantasies is rather a result of this unconscious Œdipus complex and not the cause. Thus when the unconscious Œdipus trend becomes transformed into consciousness, homosexuality results. This Œdipus complex may also dominate the unconscious mental processes of

³A. Von Schrenck-Notzing: *Therapeutic Suggestion in Psychopathia sexualis*, 1895.

⁴Isador H. Coriat: The Œdipus Complex in the Psychoneuroses, *Journal of Abnormal Psychology*, vii, 3, 1912. See also Brill, The Œdipus Complex, *NEW YORK MEDICAL JOURNAL*, November 2, 1912.

⁵For a complete discussion of this question, see the recent book by Otto Rank, *Das Inzest-Motiv in Dichtung und Sage*, 1912.

normal individuals; for instance, in some instances of bachelors who marry only after the death of their mother or in those individuals who marry relatives or women resembling their mothers. Sometimes, during childhood, this Œdipus trend may be intense, like Freud's case of Hans, who, according to Freud, was really a "little Œdipus."⁶ This is the mental mechanism of the development of homosexuality—the love for the mother becoming so powerful and dominating that it occupies the field of consciousness to the exclusion of all other heterosexual tendencies. Moll⁷ is skeptical concerning this Œdipus trend in childhood and says; "But, generally speaking, when a child exhibits an intimate and caressive affection for its mother, we shall not incline to think of the processes of sexual life," yet on the contrary, he is forced to admit "that in these caressing inclinations sexual elements are intermingled."

TREATMENT.

The best treatment for homosexuality is prevention. Prophylaxis should start with the child. Children should not be exposed to overexuberant attention from their parents. A psychic weaning from the mother is far more important than a physical one.⁸ When we come to consider the therapeutics of homosexuality, two forms of treatment can be used. In the first place, hypnosis has been successful in a large number of instances, but there seem to be certain cases in which the unconscious complex is so firmly rooted that hypnotic suggestion fails to remove it. As a rule, these patients are very difficult to hypnotize, and in many cases hypnosis merely removes symptoms and does not influence the mental mechanism which made the homosexuality possible of development. Thus there always remains the possibility of further outbreaks of the homosexual trend. In these cases psychoanalysis, both as a method of treatment and of uncovering the unconscious mechanism, is indicated. In fact in some of my cases where hypnosis succeeded in bringing about either no amelioration or merely a transitory one of the condition, a later psychoanalysis was successful in effecting a cure. In some conditions, also, I have found a combination of hypnosis and psychoanalysis very effective. Now in these homosexual cases what evidence have we that the psychoanalytic technic is proceeding successfully? Not only from a moral or ethical standpoint, but also because of the danger of acquiring a venereal disease and thus adding to the misery of the already unhappy subject, we should hesitate to advise coitus with a puella as a test of the success of the therapeutic procedure, in fact advice of this kind appears absolutely unnecessary, because the dreams furnish us, not only the best, but the most incontrovertible evidence of the result of treatment. Homosexual individuals are troubled with dreams which are either literally homosexual or contain elements of a disguised Œdipus complex. If the psychoanalytic treatment is successful the literal homosexual and Œdipus dreams gradually disappear and are replaced by dreams that are neu-

trally sexual; finally, as the treatment successfully proceeds, the dream life becomes distinctly heterosexual. Thus the dreams of homosexual individuals not only furnish the material for reaching the unconscious mechanism of the homosexuality, but are of decided prognostic value. The cases which I wish to report not only show these unconscious mechanisms, but likewise demonstrate the part played by dreams in the prognosis of the condition.

Although in some homosexual individuals the unconscious resistance to normal sexual relations may appear only during the actual act of coitus, with consequent failure, yet even if this circumstance is considered, we are not warranted in prescribing such a test. If the dream life becomes heterosexual and if the sexual day fantasies become normal, particularly if these are accompanied by the physical phenomena of sexual excitement, these in themselves will prove the disappearance of the homosexual trends. Marriage, obviously, cannot be advised until the subject is absolutely cured, and the proof of this cure lies in the disappearance of the unconscious mental mechanism which led to the homosexuality with the appearance of normal dreams, rather than in the actual test of coitus with a puella. No method of psychotherapy can hope to change the secondary sexual characteristics which occasionally appear in homosexual individuals. These secondary sexual characteristics, however, do not form an integral part of the homosexual disorder, because they may appear in individuals whose sexual craving is normal. They are caused rather by perversions in the secretions of the ductless glands, particularly the hypophysis and the pineal gland. Before the modern investigations began to be applied to the ductless glands it was quite natural that when a homosexual individual possessed, in addition, these secondary sexual characteristics, that the latter should have been interpreted as part of the homosexual disorder. It appears, however, in the light of recent investigations, that these characteristics (feminism, enlarged hips and pelvis, breast development, lack of beard, etc., in male individuals) are rather accidental combinations than a genuine result or cause of the homosexuality.

The diagnosis of a pure case of homosexuality presents but few difficulties. In the incomplete inverts, however, the diagnosis is more difficult and may be definitely established only through careful analysis. In still other cases, the homosexual tendencies are completely hidden within other mental mechanisms, such as in paranoiac conditions and compulsion neuroses. The resistance to homosexual wish fantasies may lead to paranoiac states and this transfer makes the treatment and the unravelling of the mechanism very difficult. On the contrary, I have observed several women with compulsion neuroses (psychasthenia), in which the analytic method of treatment demonstrated that the nervous disturbance arose from homosexual fantasies and repressed homosexual wishes.

CASE I. W., age forty-five years, married. According to his statement, had had homosexual impulses with occasional homosexual acts, as far back as he can remember. Evidently, the inversion had been incomplete, because with difficulty, he had been able to have normal coitus, although with incomplete libido, both before and

⁶S. Freud: *Analyse der Phobie eines 5 jährigen Knaben*, *Jahrbuch für psychoanalytische und psychopathologische Forschung*, 1909.

⁷A. Moll: *The Sexual Life of the Child*, 1912.

⁸Isador H. Coriat: *Psychoanalysis and the Sexual Hygiene of Children*, *The Child*, January, 1912.

after marriage. In the homosexual acts, the libido had been completely satisfied, whereas in normal coitus, the satisfaction had been incomplete. During his early youth and continuing up to the time of marriage, there had been considerable masturbation, at first associated with mental images of men, but as he grew older women also entered into these autoerotic fantasies, although at all times the images of men predominated. In the dreams, also, the sexual dream images were always those of men. Homosexual acts had been fairly frequent before marriage, the attraction being for men who were physically well built. Sometimes in normal coitus, in order to acquire a complete libido he had been compelled to call up the mental images of good looking men. On a number of occasions, the homosexual craving had been so predominant, that he sought public urinals in order to make chance acquaintances with athletic looking men. Nakedness in men and likewise in sculpture, had been a great source of sexual attraction for him.

A psychoanalysis of this case, conducted through dreams, disclosed a well marked Oedipus fantasy, dating from the earliest years of childhood, thus contradicting the subject's idea that his sexual inversion was congenital. It is interesting to note, as confirming the effect of this Oedipus complex upon the patient's sexual life, that his wife possessed many characteristics of his mother. The marriage did not take place until several years after the death of the subject's mother. In this case also, the change in the character of the dreams during the course of a successful psychoanalysis, was of great prognostic value.

The psychoanalysis disclosed the following data. As a boy, the patient was the subject of overexuberant attention from his mother, he was made the "baby" of the family, and his mother, both literally and metaphorically, "clung" very closely to him. He was greatly more attached to his mother than to his father, although he never showed any open hate or hostility toward the latter. His younger brother, on the contrary, was more attached to his father. Up to the age of eight years, he was subjected to strong feminine influence, in that he was the subject of his mother's overexuberant attentions and he was placed in school in a class of girls, his mother believing that the influence of girls would be more refining, as she considered that boys had a pernicious influence on one another. In order to please his mother he would often imagine himself as a girl and this imagery also entered into his day dreams.

Before the patient came under psychoanalytic treatment, the sexual dreams, sometimes associated with emissions, were purely of a homosexual nature. As the unconscious mechanism of the homosexuality was brought to light by means of dream analysis, the dreams showed an interesting and characteristic change. At first they slowly became sexually neutral and, finally, as he progressed toward recovery, purely heterosexual, in either case, either literal or symbolic. The latent content of a number of dreams showed in addition the strong unconscious Oedipus complex, which was the mental mechanism responsible for the development of the homosexuality. In this case, as in others of my series, it was thought best to record some of the most prominent dreams in the chronological order of their occurrence, first, as showing the prognostic value of dreams in a successful psychoanalysis, and second, the gradual unravelling of the mechanism of the Oedipus fantasy. After a few distinctly homosexual dreams had been analyzed, and after an improvement was noticed as taking place in the homosexual impulses, the following dream was recorded:

It seemed that he was at a house party, apparently a birthday party, at which there were a number of men and women. During the act of greeting his host he squeezed the latter's hand in what seemed to him an unusual manner, and his host returned the greeting in a similar manner. Then his host seemed to serve some ice cream moulded in the shape of pyramids. Finally some cream was given him by his host, which portion had partially melted and collapsed. An analysis of this dream demonstrated that the host resembled a man with whom he had had a homosexual affair some years previously. The pyramids of cream in this case represented a phallic symbol, while the melted pyramid of cream stood for a lack of erection in the presence of a man toward whom he felt a sexual attraction. Thus the dream instigator was an actual event in the subject's life. The unconscious symbolism of the

dream represented the beginning of a negative attitude toward homosexuality.

Following this there were two dreams in which a negative attitude toward homosexuality was prominent. In one of these there was a refusal to perform a homosexual act, thus representing an unconscious wish for normal sexuality. In another dream which took place shortly afterward, there was a distinct example of transference or *Uebertragung*. In this dream the subject recommended that another homosexual friend go to Dr. C. in order to be cured by psychoanalysis, and he stated in the dream that he already had been cured by this method. A few nights later there occurred a distinct bisexual dream. The subject appeared to be dressed in old clothes and on his head was a woman's hat adorned with artificial green leaves and pink roses. In this dream he felt that he ought to change the hat for a man's hat. Then the dream suddenly shifted to a scene in which he attempted a homosexual act with a little boy, but the latter became frightened and refused to yield. In the first part of the dream there was a bisexual feeling due to the already beneficial effect of the psychoanalysis. The analysis, however, had not yet reached the point where the benefit was permanent, therefore the tendency toward heterosexuality in the first part of the dream was transitory and changed to the distinct homosexual tendency in the second portion. Since the first portion of the dream represented the wish for a normal sexual feeling and the second for an abnormal feeling, this type of dream symbolized the unconscious struggle for normal sexuality.

For a period after that, during the course of the analysis, the patient noticed a gradual increase in the number and intensity of normal heterosexual images. A few homosexual dreams which took place were very fragmentary and at times mixed with normal sexual elements, were absolutely devoid of a sense of sexual pleasure, and were not followed, as in the past, by a homosexual libido the day after the dream.

In addition, several dreams took place in which there appeared the Oedipus complex in childhood already referred to. As a rule this type of dream was much disguised and highly symbolized. For instance, in one dream of this type a snake crawled over his body, the reptile having been released from a trunk by the subject's mother. Other dreams were also recorded, in which, through a process of condensation, he confounded his wife and mother in the sexual act. A very interesting example of this process was the following dream: He seemed to be in the room of a girl whom he seemed to recognize as one with whom he had attempted sexual relations about the age of puberty. His mother appeared to be present and he seemed to identify her with something sexual. At this point of sexual identification of his mother, there was a displacement, and she quickly changed to the girl, a beautiful example of the moral effect of the censor acting upon the unconscious Oedipus complex.

In another dream, he seemed to be ill in a hospital and bandaged around the abdomen. A man who was physically repulsive to him and at the same time unrecognized, attempted to take off the bandages, it seemed to the subject, in preparation for a homosexual act. Thereupon he started to run, but found it impossible to do so, and felt himself, as occurred in so many dreams, firmly rooted to the ground. Then a woman, who seemed to be the subject's wife, came along and they escaped into a garden and started to fly around. They were both pursued by another woman, also flying, who seemed to be the subject's mother. On analysis, we find that this dream represented a strong heterosexual wish, and the disgust with the man is an example of the increasing homosexual disgust resulting from treatment. The act of flying also represented a wish for freedom from homosexuality. In flying with the first woman (wife), away from the second woman (mother), there is symbolized the breaking away from the unconscious incest trend to normal sexuality. Thus this dream not only represented a wish for normal sexuality, but also concealed the childhood Oedipus trend. Since the patient's mother never cared to have him marry while she lived because of her strong attachment to him, he respected this wish, thus repressing the normal sexual instinct. Consequently, he found relief for his sexual craving in homosexual acts or fantasies as a reaction from the Oedipus trend. A few nights later he had another dream in which the dead body of his mother seemed to

fall upon him and he struggled to get out from under it. This struggle was successful. Here again this dream symbolized the gradual subsidence of the Œdipus complex, while the dead body of the subject's mother actually stood for the death of the mother complex, from which for years he had tried in vain to emancipate himself. Finally, however, this complex disappeared under psychoanalysis and with it the homosexuality.

CASE II. X, aged twenty-eight years, had been effeminate and attracted to his own sex so far back as he could remember. As a child he was predisposed to play girls' games. Even at puberty this feeling did not change, and women and girls had never had the slightest sexual attraction for him. One or two attempts at coitus failed. Shortly after puberty he masturbated for a time, but always associated the act with images of young or good looking men or boys, never of women or girls. The sexual dreams had always been homosexual. On several occasions, there had been homosexual acts with complete and satisfactory libido. In this case as in the first, the voice was effeminate. In his homosexual acts and reveries and even in his dreams he always played the part of a woman. Sometimes the dreams were literally homosexual. On other occasions the homosexuality was concealed under a mass of symbolism. For a time hypnosis was used in treatment for the condition, with only a transitory effect. A psychoanalysis was then begun which effected a gradual transference to normal heterosexuality. As in the first subject, the dream analysis disclosed the origin of the homosexuality in an Œdipus complex which developed during childhood.

Dream: He appeared to be walking on the street with his mother and they met a woman, a relative of the family. Then suddenly a third woman came upon them, and he was planning to introduce her to the woman who was his relative, but he could not remember her name. Finally he said to the woman: "I will find your husband, we will take you to him," whereupon she replied: "Never mind him, I don't care where he is." Then the second woman went away and he with his mother and the first woman (who appeared to be the relative) walked along the street. Thereupon the younger woman began to hug and caress him in the presence of his mother, at which attention he became much disgusted and wondered what his mother would think of it all.

Analysis shows this dream to have contained an exquisite Œdipus fantasy. It developed during the analysis of the dream that the young woman who was with his mother, was actually his mother at about the age when the subject was born. In the dream also there was a process of doubling, as is frequently found in myths, in that his mother appeared to be at the same age as she actually was, while the young woman appeared to be his mother when she was young. The subject's mother was actually living. The young woman in the dream was very beautiful and appeared older than the subject. A process of condensation also took place in this young woman, in that she appeared to be the wife of one of the subject's most intimate friends plus a combination of the subject's mother when young as remembered from her photographs. To this friend's wife he was attracted in a way which no other woman had ever attracted him, because she resembled his mother. The emotion of this attraction, however, for moral and ethical reasons, had been suppressed, but the suppression appeared in the dream in a condensed and at the same time a doubled form. As a child he thought his mother very beautiful and was very much attracted to her. To his father, however, because of his dissipation, the child developed an open hate and hostility and so ashamed was he of his father's behavior that he would tell others that he was only his stepfather. Any transitory attraction that the subject may have had for the women in his adult life was always for women who resembled his mother and who possessed her mental or moral characteristics. There had never been any homosexual attraction for men who resembled his father.

In his homosexual fantasies, when a child and in adult life, the subject was always passive and imagined himself to be a woman. The maternal influence was so strong that the subject acquired many feminine characteristics. The doubling of the principal figure in the dream represented an unconscious wish that his mother be young again, so that he might admire her as he did in childhood. This literal wish feeling also occurred in dreams of one

other of my reported cases which showed the Œdipus complex. The young woman in the dream who "appeared" to be a relative of the subject, by the processes of doubling was actually his closest relative, in fact his mother. Her refusal to be taken to her husband, who in the dream appeared in a vague way to be the subject's father, was a symbol of the hatred of his mother for his father. The embarrassment when the young woman began to hug and kiss him was probably reminiscent of the maternal over-affection, while the emotion of disgust which appeared in the dream was the unconscious reaction against incest complex. The subject frequently thought that if he could care for women in the same manner that he cared for his mother, this would solve the problem of his homosexuality.

The analysis of a number of other dreams disclosed homosexual fantasies concerning dead male bodies. As the analysis proceeded and the homosexual condition disappeared the nature of the dreams began to change. At first they contained heterosexual as well as homosexual elements and, finally, parallel with a distinct lessening of craving for men, the dreams contained either clear heterosexual episodes or disguised wishes for marriage and children. For instance, the following dream was recorded as containing elements referring to the latter wish: He seemed to enter an underground tomb in which he saw the skeletons of several children. As he came out of the tomb the tip of a flag pole appeared in front of him out of a mound covered with grass and gradually grew longer and longer until the entire pole was visible. Here the underground tomb signified the uterus and the children inside the tomb symbolized pregnancy. The flag pole was a phallic symbol and its gradual lengthening represented a wish for normal coitus and children.

CASE III. Y, aged forty years, had been married a number of years and had several healthy children. As a child there was considerable masturbation. The homosexual tendencies and acts did not appear until several years after marriage. In this case, as in the second, hypnotic suggestion was only partially successful in overcoming the homosexual trend and only after the application of the psychoanalytic treatment was a cure effected. The psychoanalysis disclosed the following data and cleared up the interesting question as to how a man who was distinctly heterosexual up to and during the first part of his marriage, later became homosexual, particularly since the homosexual craving, after its development, completely dominated his normal sexual impulses.

The first homosexual experience occurred several years after his marriage. Because of a deformity of the chest he was a sensitive and delicate child and dreaded exposing himself to other boys, particularly while bathing at the private school which he attended. The erotic fantasies associated with masturbation during childhood were always those of women. At the time of his first homosexual episode he found that this means of gratification afforded him the same satisfaction as normal indulgence. He was early sent to a private school composed of girls, where few boys were admitted. Later he began to admire asceticism (owing, he thinks, to the influence of a friend), and began to feel that seeking the society of girls was a form of manly weakness. For his mother he had great admiration, and confided in her his early habits. He was informed by her that the habit was productive of many mental and physical disorders, so that later he ceased to confide in his mother and continued his practices in great secrecy. Certain passages in the Bible referring to sexual uncleanness greatly impressed him, in fact so much so that whenever his hands even accidentally touched his genitals, he would wash them, a kind of compulsion mania having a distinct sexual etiology. As I have recently pointed out, this compulsion mania for washing the hands, which were thought to be contaminated, thus transferring an unpleasant complex to an indifferent act or symptom, also took place in Lady Macbeth.¹⁰

Finally, when he was admitted to a boy's school he was looked upon by the other boys as being bashful and effeminate. It developed that at the time of his first homosexual act after marriage his wife was ill with some uterine disorder, therefore he deliberately refrained from coitus. The sexual craving was strong, however, and he chose homosexuality to satisfy his libido, as he felt that this did not involve infidelity to his wife. Therefore in

¹⁰Isador H. Coriat: *The Hysteria of Lady Macbeth*, 1912.

this case the homosexuality arose as a compensation mechanism to satisfy the repressed sexual craving. Possibly also the development of certain effeminate traits which took place during childhood may have acted as an unconscious complex which partially determined the choice of homosexuality. The inversion not only satisfied his craving, but also acted as a compensation or rather an excuse that he must not overstep the bounds of law and morality to satisfy his sexual instincts.

The dreams of this case strongly symbolized his childhood tendencies and the mechanism by which his unconscious complexes gradually forced him into homosexual acts. The analysis was conducted entirely through means of the dreams.

416 MARLBOROUGH STREET.

PSYCHIC CONSTITUTIONAL INFERIORITY.

Some Fundamental Conceptions.

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In this preliminary communication I desire to set forth the fundamental conceptions of psychic constitutional inferiority. According to many authorities, the group of psychic inferiority is restricted to the intellectual domain only, and no recognition is given to the other two faculties, emotion and volition, which are equally important. In order to obtain a better grasp of this subject, it will not be amiss to refer to the structural elements of the human mind in their normal relations.

Roughly speaking, the human mind is composed of three important faculties—emotion, volition, and intellection—and each of these faculties may be divided into groups and subgroups. In order to establish a proper adjustment of the mental organism these faculties must harmoniously balance. A concrete example will serve as illustration.

Suppose Mr. A walks on the street and sees a man being run over by a truck. It is necessary for him to evince an adequate emotional response; a certain amount of activity—will power; and a proper judgment in confronting such a situation. If, on the other hand, Mr. A's emotions are entirely out of proportion to his volition and intellection, by seeing such an accident he would become emotionally unbalanced, and in the meantime the unfortunate subject would be deprived of proper attention. Again, if Mr. A's volition should be entirely out of proportion to the other two faculties, he would show considerable activity, but without definite aim. Then again, should his intelligence be so remarkably developed at the expense of the other two faculties, he would most probably stop, pondering over the physiology and pathology of bleeding and the mechanics of the accident, and in the meantime the unfortunate man would die of hemorrhage. If you take the other extreme, say, Mr. A's emotions are much lowered, or his volition is not fully developed, or again, his intellectual sphere is defective, the mental reaction in such a case would be decidedly abnormal. We are taking the extremes to illustrate pathological mental states.

These illustrations prove that an inferiority in the psyche need not be a defect in the mechanism of

the intellectual sphere only, but it may also involve the other faculties as well. The following definition of psychic constitutional inferiority may be offered: *By psychic constitutional inferiority we mean a defect (usually congenital) in the emotional, volitional, or intellectual sphere, more than one faculty may be affected. As a result of this there is a loss of mental equilibrium to such an extent as to make one incapable of adjusting himself to environmental influences.*

Hence, mental inferiority should be divided into groups—emotional, volitional, and intellectual—and mixed types, combinations of two or more forms.

Emotional form. This form of psychic constitutional inferiority includes a wide range of mental pathology. It would be difficult to outline a complete classification of emotional inferiority, but for convenience we may divide this group into two main classes, hypoaffective and hyperaffective. The first may again be subdivided into two classes, the "shut in" personality (Hoch) and the seclusive make up with irritability and outbreaks of petulant and uncontrollable fits of passion.

The shut in personality can be demonstrated in a large majority of cases of dementia præcox. However, it should be remembered that there are individuals with such a personality that do not develop deteriorating psychoses, but are rather susceptible to neuroses. They are seclusive; have but few friends and are not infrequently called misanthropes; indulge in numerous fantasies, and are fond of speculative reveries; and lead at times an abnormal sexual life, perhaps a bit perverse or inverse, and rarely marry. By reason of this peculiar mental make up they repress their experiences. It is rather interesting that they seem to get on very well in their own way, and rarely come in conflict with their environment. It is important to note that they are usually fairly well developed intellectually, and the question arises whether or not the overpreponderance of the intellectual energy helps to compensate for the deficiency in emotional activity.

The second class is the seclusive personality that is subject to tantrums. In some cases an element of intellectual inferiority or neurasthenoid features may be in the foreground. Such subjects are prone to exhibit a transitory psychosis, which usually expresses itself in excitement, not of a dementia præcox reaction, but rather of indefinite trends, perhaps simulating an epileptoid outbreak. The prognosis for the episode is usually good.

The hyperaffective group embraces the manic and hysterical constitution, to which no allusion is necessary. However, it is desirable to refer to the hysterical temperament without clearly cut somatic conversions and with relatively little complex fixation. Such individuals become readily upset; cry easily; grow excitable and irritable; and in them under adverse circumstances may develop a transitory psychosis, which is usually of short duration. Indeed, in the psychopathic wards of Bellevue Hospital one sees such cases very frequently. In some instances paranoid trends and suicidal tendencies may develop, but in such cases one finds a recent trauma, possibly of a sexual nature, that is responsible for the outbreak.

Brief mention must be made of the nervous temperament, that is, that class of individuals who are sensitive, hyperactive, irritable, unstable, and display considerable intensity in their undertakings, but with relatively good intellectual endowment. This type of constitutional inferiority I was able to demonstrate in a majority of cases of general paralysis.

There is another type of the hyperaffective form of psychic constitutional inferiority, which lacks manic and hysterogenic trends. These subjects are usually sulky, morose, irritable, and excitable, and frequently give vent to uncontrollable temper, and at times become abusive and assaultive. It is possible that in such cases the volitional faculty may also be at fault.

Volitional form. This form of mental inferiority is one of the most striking in the field of psychopathology. It is lamentable that such individuals come more often under the care and attention of courts than under the observation of physicians. The characteristic feature of this type of psychic inferiority is a reduction of will power, and in some cases the character may show some alteration. They become easily influenced by suggestion, which, however, is not lasting; they are unable to control their impulses, and not infrequently commit gross sexual acts and other crimes; they yield to temptations and are inclined to lie and deceive; they are easily influenced by bad environment, and immoderately "worship at the shrines of Venus and Bacchus;" they frequently come into conflict with their environment and become decidedly antisocial; and, moreover, they are subject to uncontrollable fits of passion. It is rather interesting that these individuals are usually intelligent and educated, and there is no congenital defect in the intellectual faculty. Individuals of this class are frequently known as "the black sheep of the family." Without exaggeration it may be said that a large majority of our criminals, tramps, vagrants, prostitutes, chronic alcoholics, habitués of drugs, and the like, come under this class. Many are of good lineage and are not burdened by hereditary taint. It is very important to recognize these types of mankind in the early developmental stages, and every possible effort should be made to adjust them to such an environment as will offer the least temptation in life.

Intellectual form. The intellectual form of psychic constitutional inferiority includes a large territory of mental retardation, ranging from idiocy to a mild degree of mental enfeeblement. In the majority of cases uncontrollable temper or defective will power, or both, are observed. The intellectual defect may express itself in the combinative faculty, or in the higher association centres, or again, a general and uniform reduction of the entire intellectual organism may occur. It is not within the province of this paper to offer a classified symptomatology of this type of mental inferiority, but suffice it to say that this is one of the most obvious forms of psychic inferiority which rarely passes unnoticed by trained observers in psychopathology.

PSYCHIC CONSTITUTIONAL INFERIORITY IN RELATION TO MENTAL DISEASES.

It will not be amiss to emphasize that constitutional inferiority is the foundation of many (if not

all) forms of psychoses. The question arises what specific type of psychic inferiority determines the nature of a mental disease. Meyer and Hoch showed that in manic depressive insanity and dementia præcox the mental make-up is quite characteristic. Likewise, hysterical outbreak and paranoid conditions develop in certain personalities. In a majority of cases of general paralysis I have found a peculiar form of nervous temperament in which, in addition to syphilis, is prone to develop this fatal disease. Recently, Mattauschek and Pilcz have made very important investigations regarding the fate of 4,000 luetic officers of the Austrian army and found that only 4.67 per cent. of them became paretics. This confirms the view that syphilis alone is not sufficient to produce general paralysis. It appears to me that to the syphilologist it would be important to recognize the nervous temperament of such individuals and institute timely prophylactic measures.

A large number of cases of alcoholic psychoses are evidently engrafted upon a peculiar type of personality, and the habitués of drugs invariably display striking psychopathic trends. If more careful study could be made of the mental make-up of other forms of psychoses, it would be possible to define other types of psychic inferiority in such patients.

It must be borne in mind that not in every form of constitutional inferiority a psychosis develops. This could be confirmed by the clinical material in the psychopathic wards of Bellevue Hospital, where during the year large numbers of cases of psychic constitutional inferiority are admitted, but are not committed to the State hospital because in the legal sense they are not insane. Under the present state of affairs treatment in a State hospital would be infinitely better than confinement in reformatories, prisons, and other similar institutions.

DIAGNOSIS.

The diagnosis of psychic constitutional inferiority is not difficult to make, provided the life history of the patient is thoroughly investigated.

It is important to accentuate the fact that there are two types of mental inferiority, *relative* and *absolute*. By the former we mean a type of inferiority which may be considered as such in a certain environment, but which, under different conditions, would not be so regarded; for instance, a Russian peasant may be looked upon as an inferior in an American commonwealth, whereas in his own community he may be regarded as a very respectable member. By the latter (absolute) is meant a striking defect in the mental organism irrespective of one's environment.

The anamnestic data should be obtained from the patient's parents, or other relations, or both; additional information from ministers, teachers, and friends, is very important. It cannot be too strongly emphasized that a thorough history of such cases is necessary from the point of view of differential diagnosis. There are cases of mental infirmity without psychotic manifestations, which in the absence of an anamnesis are often mistaken for constitutional inferiority.

The recognition of psychic constitutional inferiority in the developmental stage is of prime im-

portance; the sooner the process can be arrested the better is the outlook for the organism to adjust itself to an environment. How many backward boys, unruly pupils, and juvenile delinquents are unjustly punished and deprived of timely medical treatment!

It is impossible to offer definite guides by which we can diagnosticate the wide, broad range of psychic retardation. The mental organism should be viewed and gauged in different ways: first, in relation to itself; second, in relation to its environment; and third, in relation to its capacity of adaptation to various conditions. No single test or symptom should be considered pathognomonic, but the case should be regarded as a whole. We have various intellectual tests which aid us greatly in recognizing intellectual infirmity.¹

PROGNOSIS.

Generally speaking, the prognosis of psychic constitutional inferiority is poor, but under proper treatment and reeducation, especially in the earliest stages, considerable good can be done, the process can be arrested, and the individual adapted to an environment suited to his peculiar type of mentality.

TREATMENT.

Early recognition and proper treatment of psychic constitutional inferiority is extremely important, especially from the standpoint of prophylaxis as applied to mental diseases and other forms of psychic degeneracy. In some instances segregation of such types of mankind would be highly desirable. One must remember that at the present time these cases are treated, or rather maltreated, in reformatories, workhouses, penitentiaries, or other penal institutions. It can be readily seen that such influences are highly detrimental to this class of patients; instead of assisting them to find adjustment in a healthy environment, they are thrown into a society where their abnormal tendencies become more and more accentuated, thus promoting further mental deterioration. Many of them become habitual criminals and spend most of their lives in prisons; others end their lives at the scaffold; others become dependent upon society and become its parasites; and still others become chronic alcoholics and habitués of drugs. If these unfortunate pieces of humanity were correctly understood and their malady early recognized, crimes would be reduced to a minimum; prisons would be open only to casual criminals; and the amelioration of the race at large would be highly assisted.

It should be borne in mind that at the present time we have no institution for the care and treatment of psychic constitutional inferiority. It is necessary to establish a hospital with trained psychiatrists, pedagogues, and sociologists, where such cases should be carefully studied and educated along certain definite lines. The object should be to enable them to become fairly efficient members of certain communities adequate to their mental capacity, and not to make them permanent dependents upon public institutions; in other words, to adapt them to the simplest possible environment to which the mental organism can adjust itself without detriment. At the present time it is very important to

have competent psychiatrists connected with our kindergartens, schools, and colleges, for the purpose of examining the pupils and detecting mental deviations from the normal. In such a way we could institute early treatment for such cases.

ADDENDUM.

BINET AND SIMON'S TESTS.²

Three Years of Age.

1. To point to mouth, nose, and eyes.
2. To repeat a sentence of six syllables and a number of two digits. *The cow gives us fresh milk.* 23; 67.
3. To name objects and persons on a plain picture.
4. To give surname.

Four Years of Age.

1. To name common objects used in every day life.
2. To repeat a number containing three digits.
3. To state whether a boy or girl.
4. To compare two lines; which is the longer of the two (one is 2 inches and the other is 2¼ inches)?

Five Years of Age.

1. Which of the two objects is heavier?
2. To repeat a sentence of ten syllables. *The teacher praises diligent pupils.*
3. To count four coins.
4. To place two triangles to form a rectangle.
5. To copy a square with pen and ink.

Six Years of Age.

1. To show the right hand and left ear.
2. Is it forenoon or afternoon?
3. To give age.
4. To carry out three commands.
5. To repeat a sentence of sixteen syllables. *The cat lurks for the mouse and catches it suddenly in a leap.*
6. What is a table, horse, rose? (It is required that the patient should explain the use of such objects.)

Seven Years of Age.

1. To describe a picture.
2. To recognize incomplete figures.
3. To copy with pen and ink the following: "The small Paul."
4. To count thirteen coins.
5. To count fingers on the right and left hand and both hands.
6. Drawing of a rhomboid figure with pen and ink.
7. Recognition of foreign coins.
8. Repeating a number of five digits.

Eight Years of Age.

1. Addition of five well known small coins.
2. Recognition of colors—red, yellow, green, and blue.
3. Count backward from 20 to 0.
4. Write from dictation: "The sun shines."
5. Give the difference between a butterfly and a fly; wood and a glass; bone and meat.
6. To repeat a short story (at least two things should be correctly reproduced)

Nine Years of Age.

1. Give the day of the week, date, and year.
2. Repeat the days of the week.
3. Put in order according to weight five small boxes.
4. A small box was bought for twenty cents; to give change from one dollar.
5. What is a table, a horse, and a rose (a short description is required)?
6. To reproduce a short story (at least six correct things to be given).

Ten Years of Age.

1. Repetition of months.
2. Knowledge of various kinds of coins.
3. Form a sentence of three words which are not very easily chosen; two sentences are permissible, but they must have a meaning.
4. Easy intelligence tests; e. g., *What do you do if you miss a train? What would you do if you were accidentally struck by a friend? What would you do if you broke a thing which did not belong to you?*

¹These tests are given at the end of the article.

²Borrowed from Raeké's book, *Grundriss der psychiatrischen Diagnostik*, 1912.

5. Difficult intelligence tests; e. g., *What would you do if, on the way to school, you found that the time was getting short? What should one do before deciding important matters?*

6. What should one do if he is asked about a person whom he does not know well? Why should one excuse a bad act committed in temper and not premeditated? Why should one be judged by his actions and not by his speech?

Eleven Years of Age.

1. Criticise the following absurd statements: *I have three brothers; Paul, Ernest, and myself.* Is it correct? Why not? How should you say it?

Recently a body was found in the woods which was cut up into eighteen pieces. Some people believe that suicide was committed. Is it possible?

Yesterday I read in the papers of a railroad wreck without bad results—there were only forty-eight deaths. What do you think about it?

2. Compound one sentence from three words.

3. Name at least sixty words in three minutes.

4. Give examples for the following: When one sympathizes with another; when one is just; when one is envious.

5. Out of ten loosely connected words form a complete sentence with a meaning.

Twelve Years of Age.

1. To repeat a number with six or seven digits.

2. To repeat a sentence of twenty-six syllables: *Yesterday mamma and papa visited my dear old grandfather who was sick in bed for twenty days.*

3. Give three words to rhyme with one word in one minute.

4. Questions pertaining to combinative faculty.

5. *My neighbor just now received strange visitors—a doctor, a notary, and a priest.* What do you think happened there?

Mr. Johnson took a walk in the woods and he suddenly became so frightened that he could not move. He ran to a policeman and told him that he saw a nest on a tree. What do you think about it?

6. Describe and interpret a picture.

ZIEHEN'S INTELLIGENCE TESTS.³

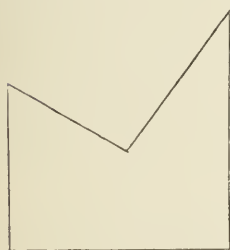
I. Retention.

(1). Old impressions: These are tested by questioning the patient as to his personal and family history, school knowledge, etc.

(2). New impressions: (a) Repetition of numbers and letters; for instance, 1869, 79581, 834596, 41927561. An ordinary individual can repeat without difficulty six numbers; the *Korsakoffs* usually can retain three numbers; paretics repeat four numbers. Inability to repeat three numbers usually indicates a grave intellectual defect or dissociation.

(b) Repetition of an example, which is given at the beginning of the séance.

(c) Reproduction of objects, colors, or pictures. The following figure is usually exposed for fifteen seconds; later covered for fifteen seconds and then patient is asked to reproduce it.



Dress—white.

II. Abstraction.

This is divided into four parts:

(d) Reading and relating of a short story which has definite point.

(e) Pair words, which usually have some relation to each other, are given to the patient. After a pause, a member of the pair words is named and the patient is requested to reproduce the corresponding one.

Garden—large.

House—small.

House—yellow.

Picture—nice.

1. Specification and generalization.

2. Definition.

3. Differentiation.

4. Exemplification.

(1'). Specification:

To what class of the animal kingdom do the following belong: Eagle, ant, goose, chicken, turkey?

Name animals which have wings, bill, and lay eggs, etc.

(1''). Generalization:

Name different kinds of birds.

Name different kinds of rivers.

Name the furniture you know.

Name different kinds of instruments.

(2). Definition:

What is jealousy?

What is gratitude?

What is hatred?

What is a butterfly?

What is a horse?

(3). Differentiation:

Differentiate between an ox and a horse; child—dwarf; bird—butterfly; ladder—steps; lie—mistake; avarice—economy; box—basket.

(4). Exemplification:

What is worse, lie or mistake, and why? Give an example of gratitude; jealousy; avarice; envy.

III. Reproduction.

Association test. Fifteen words are given. Ziehen employs the following words:

Forest,	Disease,	Sin,	Sweet,	Run,
Red,	Small,	Father,	Poison,	Death,
House,	City,	Jealousy,	Wedding,	Fish.

At the end of the séance the first three are repeated; after twenty-four hours and one week, respectively, the other words are repeated.

IV. Combinative activity.

The ability to combine higher mental processes—the foundation of judgment faculty.

(a) Recognition of former objects and persons.

(b) Grasp on new environment.

(c) To explain the meaning of certain pictures.

(d) To give the moral of a fable, for instance, the dog and the manger; the lion and the mouse, etc.

Writer's modification of the fable; puts the following questions:

Of what does this fable remind you?

How would you act if you were placed in the same position?

(e) Ebbinghaus's method: To supply missing words or syllables in a sentence; for instance:

There was — — merchant — — had — child; — barely laden — then making — — upon —, in — he had — all — wealth, in — hope — making — great — when — news — that — were lost.

(f) Ziehen's modification of Ebbinghaus's method: to complete unfinished sentences:

If the soup is burned;

If it rains;

If Jack Johnson had lost.

(g) The alphabet and picture block method:

Patient is requested to compose certain words or form pictures or objects.

(h) Masselon's test: Formation of sentences out of two or more words:

Cat—mouse—cellar.

Hunter—fix—woods.

(i) Proverbs: (Fincke) To explain the meaning of certain proverbs.

Strike while the iron is hot.

Many cooks spoil the broth.

Do not look a gift horse in the mouth.

(j) Bourdoun's method for testing attention.

Patient is asked to point out certain letters or syllables in a senseless composition.

(k) Arithmetical test.

$X + 25$ equals 40; what is X ?

$X - 15$ equals 50; what is X ?

$X \times 5$ equals 45; what is X ?

$X \div 2$ equals 7; what is X ?

(l) Backward association.

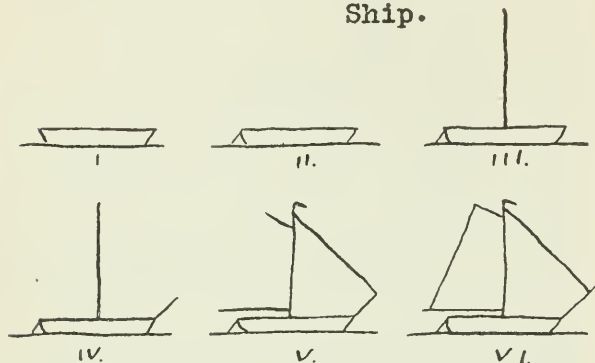
Enumeration of week days and months; counting from 20 to 1, etc.

³Reprinted from Remarks on Neurology and Psychiatry in Berlin, with Special Reference to Ziehen's Intelligence Test, by Morris J. Karpas, M. D., *State Hospitals Bulletin*, December, 1910.

OTHER TESTS.

- (1) Which is heavier, a pound of lead or a pound of feathers?
 (2) There were twenty-four birds on a tree; one third was shot down; how many remained seated?
 (3) Heilbronner's method: Recognition of rudimentary outline drawings of certain pictures; for example:

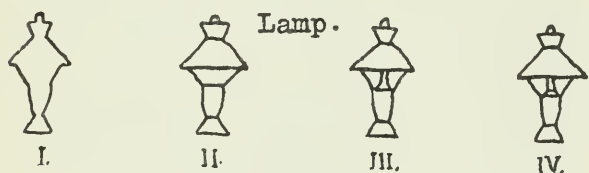
Ship.



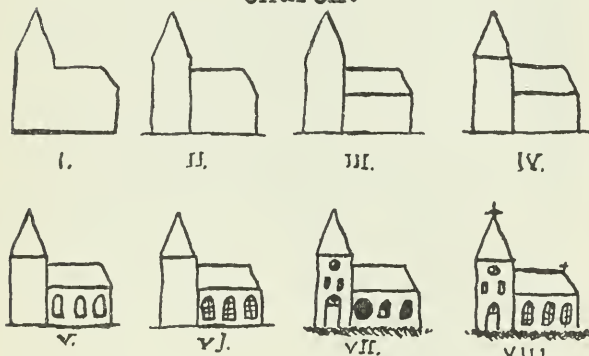
Fish.



Lamp.



Church.



- (4) Rosenfeld's rhythm test: The patient is asked to imitate the rhythm of a sound which is produced by striking a glass with a metal rod.

BELLEVUE HOSPITAL.

EXPERIENCES WITH NEOSALVARSAN.*

The Intramuscular Method.

BY JOSEPH KAUFMAN, M. D.,

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We have had about nine months' experience with neosalvarsan and there are several questions which we are now in a position to answer with a reasonable amount of assurance. As to the value of

arsenic in the treatment of syphilis, whether in the form of salvarsan or neosalvarsan, there is no longer any question. As to the nonrealization of Ehrlich's hope that here we had a therapia sterilisans magna, there is no longer any doubt.

The ease of its preparation for administration brings neosalvarsan into the class of remedies that every practitioner can use. Its perfect solubility in freshly distilled water, giving a neutral or slightly alkaline solution ready for injection, does away with the somewhat complicated preparation necessary for the administration of salvarsan.

We have yet to determine: 1. Is neosalvarsan as potent as salvarsan? 2. What is the best way to administer the drug?

In over fifty cases occurring in the service of Dr. Abraham L. Wolbarst at the West Side German Dispensary and in the writer's private practice, we have been able to study the action of neosalvarsan, and we can say that our results with the newer drug have been quite as satisfactory as with salvarsan. One of these cases is worthy of special mention, as illustrating the potency of this remedy.

CASE. G. Mc., aged forty years, laborer; primary sore appeared December 15, 1911. Diagnosis of syphilis was not made until January, 1912, when a marked secondary eruption appeared. Salvarsan, gramme 0.6, was given intravenously with the disappearance of the lesions within seventy-two hours. One month later the patient received another intravenous injection, followed in three weeks by still another (each 0.6 gramme). A specimen of blood examined one month later showed a doubtful Wassermann reaction. One week later, the patient returned with complete loss of vision in the right eye. Examination showed an intense chorioretinitis. He was put on vigorous mercurial treatment, large doses of potassium iodide (grains 180, three times daily) and the usual local measures, with absolutely no improvement. During this period, over three weeks, the patient was salivated several times.

Neosalvarsan was then injected, intramuscularly (Wolbarst method) with immediate improvement. Three weeks later he had another intramuscular injection with still more marked improvement. At the present writing, while his vision is not perfect, he is able to distinguish objects and read large print with the affected eye.

What is the best way to administer the drug? When salvarsan was first brought out, the intramuscular method, advocated by Alt and Wechselmann, was generally used. The severe pain, abscess formation, and tissue necrosis stimulated the search for another method of administration. Schreiber, Iversen, and others then suggested the intravenous method, which has proved to be a great advance on the original method of administration.

Experiments conducted about this time showed that when the drug was given intravenously, all the arsenic was eliminated in from four to eight days, while after an intramuscular injection traces of arsenic were found in the urine for several months. This, in itself, was very suggestive. Ehrlich then recommended that salvarsan be given three or four times at short intervals.

Since April, 1912, we have been experimenting at the clinic with neosalvarsan, in the hope of devising a painless intramuscular method. We have found that lesions clear up after intravenous injections as if by magic, but the therapeutic effects in the average case are not lasting. Results after the intramuscular injection are slower, but we have found them to be surer and more trustworthy.

There are other objections to the intravenous

*From the Service of Dr. Abr. L. Wolbarst at the West Side German Dispensary.

method. While it is a comparatively simple thing to plunge a needle into a distended vein, anyone who has had any extended experience with this method remembers cases which defied his customary skill, the infiltrations, the hematomas, and the hurt to one's personal pride. The disfigurements following the cutting down on veins when that procedure was necessary are also not to be forgotten.

In our first experiments at the West Side German Dispensary with the intramuscular method, we simply dissolved the neosalvarsan in five c. c. of sterile distilled water and injected it into the gluteal muscles. The exquisite pain and marked induration proved that we would have to adopt some other method of preparation.

Doctor Wolbarst then devised the following method:

The powder is mixed in a mortar containing three or four c. c. glycerin (c. p.); to this is added a few drops of one per cent. beta eucain or alpin solution in distilled water. The suspension has now been converted into an almost clear watery solution. The buttocks are painted with iodine, and four spots are located, two in each buttock, into which one c. c. of the solution is injected and slight pressure made by the hand. The patient is not confined to bed.¹

The only possible objection to this method is that severe pain may follow the injection. But the question of pain is such a peculiar one that as a symptom it must be considered relative rather than absolute. Some patients have complained bitterly of pain, but they are usually neurotic patients, to whom any procedure is painful. Many others have suffered absolutely no pain whatever. Some patients have had pain at only one of the four puncture sites. Many patients have told us that there was not much more pain than after an injection of salicylate of mercury.

In none of the cases has there been any necessity of keeping the patient in bed. A slight stiffness is the chief complaint, and this passes off in a few days. Sometimes the pain appears on the fourth or fifth day.

As to ultimate results, we are not in a position, after so short a time, to make any positive statements as to the curability of syphilis with the means at our disposal. It is only when a great many years have passed that we shall be able to speak positively and authoritatively. At present we must be content to bring our patients to a point where the clinical symptoms are negative and where repeated examinations by competent and careful serologists disclose persistently negative Wassermann reactions.

At present in our dispensary service we are treating our patients with neosalvarsan, injected intramuscularly after the method of Doctor Wolbarst. We give our injections, where possible, at monthly intervals until the Wassermann reaction is negative and repeated examinations show it to remain so.

In private practice we are giving our patients three intramuscular injections at monthly intervals and following these with a series of salicylate of mercury injections.

CONCLUSIONS.

1. One injection is not to be considered curative.
2. Neosalvarsan is quite as potent as salvarsan.

3. The intramuscular method is more effective clinically than the intravenous.

4. Its effects are far more lasting than the intravenous, though not so rapid.

5. The pain attendant on the injection, where there is any, is not a valid objection to this method.

6. With aseptic technic there is no danger whatever of abscess or necrosis.

Our thanks are due to Doctor Wolbarst for the privilege of studying and reporting these cases, and to Dr. B. W. Key for the eye examinations in the case referred to above.

119 EAST TENTH STREET.

SURGICAL CATHARSIS.*

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A man who now presents anything pertaining to the abdomen should crave pardon from an audience of medical men. This subject has been written upon so often, so thoroughly, so exhaustively and completely, during the last twenty years, that at first thought it might seem that nothing further really pertinent to the subject could be said. The literature of this subject is composed of reports of individual cases by the occasional operator and of the most elaborate theses by the masters in surgery, of experimental work by the laboratory student and vivisectionist, and the brilliant achievements of the clinician and pathologist. Admitting, if need be, that the last word of weight in the matter has been said, the importance of abdominal lesions is so prominent, both from their frequency in practice and the high mortality in neglected or incorrectly diagnosed cases, that anything offered to the profession relative to the subject may be considered legitimate.

The use of cathartics in intraabdominal lesions is of equal interest and of equal importance to both surgeon and internist. The use of cathartics to stimulate function in an uninjured intestine will not, however, be considered here. This belongs more properly to the internist. The discussion is to be confined to the preoperative and postoperative use by the surgeon and their use by the general practitioner in the so called "acute abdomen" before the patient is transferred to the care of the surgeon.

Of all the various classes of drugs used in medicine, cathartics were, no doubt, among the earliest employed. This was due to two principal causes; the early idea of purification of both soul and body that is coexistent with earliest religious history; and, second, that the results of catharsis were so evident to the senses. The casting out of devils and the casting out of foul humors from the body bear a striking similitude. The results of catharsis are evident to touch, sight, and smell; hence their use came about as a natural sequence of the reasoning process in primitive man. The removal of bad looking and foul smelling excrement from the body by the use of cathartics was to him a striking example of purification. The curative results many

¹Wolbarst, *Medical Record*, July 27, 1912.

*Read at the semiannual meeting of the Connecticut State Medical Society, Willimantic, October 17, 1912.

times, in various ailments from melancholia to functional intestinal obstruction, was so marked that there was a real reason for their use, added to the primary idea of purification. The result of all this has been to fix in the minds of not only the laity but also the profession, an unbounded faith in cathartics. The production of catharsis has become almost a condition *sine qua non* in the treatment of nearly every diseased or suspected diseased condition. To procure this the most powerful drugs have been employed, and their use has been most indiscriminate.

The effect of cathartics in general depends on the irritating quality of the drug used. This is sometimes a property of the drug *per se*, and sometimes the drug must be acted upon and combined with the intestinal secretions before it becomes an irritant and capable of producing expulsive effort on the part of the bowel. In addition, there are drugs which produce expulsive effort by increasing muscular action of the intestine through stimulation of the nervous system. On the whole, however, a cathartic must be regarded as an irritant, whether it produces its effect by coming in direct contact with the mucous membrane of the alimentary canal, or indirectly through its influence on the nervous system, after having been introduced into the human body.

For sake of further definition, I will repeat in part something already said. The use of cathartics is of interest to the internist in regulating the function of a normal bowel. By this term, normal bowel, is meant in this connection a gut whose functioning power is impaired, but in which no gross lesion is present or threatened. This phase of the use of cathartics is to be left out entirely in the discussion. In so far as the surgeon is concerned, the use of cathartics may be divided into two groups: Use in preparation for operation, and in securing evacuation after operation.

It is but a few years since that every patient who was to be subjected to an abdominal section was required to undergo a prolonged and thorough catharsis as a routine practice. It was thought absolutely necessary that the intestinal tract be swent and garnished to the fullest extent possible. This, together with the elaborate and complete toilet of the external abdomen, should have exhausted any except the most robust.

The result of this internal cleaning process was this: The patient came to operation with a lame intestine, its mucous membrane roughened and congested by maltreatment, its secretions depleted or exhausted, its musculature weakened, its nerve filaments either stimulated to excitability and irritability, or beyond this point to that of absolute inaction from overstimulation. Is it possible to conceive a condition more favorable to intestinal paresis, the formation of volvulus, adhesions to raw surfaces left by operation, and consequent postoperative obstruction? Anyone who has been doing abdominal work for ten years or more will tell you that he sees much less of postoperative complications now than when rigorous preoperative catharsis was in full use. This is, no doubt, in part due to improved technic, but the greater part is due to modified preoperative catharsis.

It is admitted that an empty gut is desirable in intraabdominal work. But it is proper here to inquire what is meant by an empty gut. While following an active catharsis a gut may be completely empty of fecal content, it is likely to be widely distended with gas, and a gut fully distended with gas is much more difficult to control than when distended with fecal material. Everyone can recall repeated instances in emergency work where the patient came to operation without preoperative catharsis, with a gut full of fecal matter, where the postoperative progress was perfectly satisfactory and uneventful. In fact, the large majority of these cases do well. The small intestine, when there has been no cathartic administered, is filled with liquid material. Its contents consist of food in solution, provided no unmasticated or absolutely indigestible substance has been ingested. The solid part of the fecal stream is in the large intestine, mostly refuse material after the body has appropriated most of the liquid and soluble portion as pabulum for nutrition. The contents of the large intestine can be quite thoroughly removed by enemata. Why, then, disturb the equilibrium of the patient by rigorous catharsis?

In cases where the operation is elective and consequently sufficient, time can be taken for preparation of the patient, a mild cathartic given three or four days before the date of operation, putting the patient on a diet leaving but little residue, allowing water freely, giving an enema every morning to wash out the large intestine, should bring the patient to the operating table in good condition. Added to this, some drug may be given to arrest or modify intestinal fermentation. It is very doubtful, however, if any single drug or combination of drugs influences fermentation in any considerable degree when given for this purpose.

In postoperative catharsis the surgeon of to-day is not so strenuous as his predecessors. The patient is not, as formerly, put on calomel on the second day, to be followed by a saline, irrespective of the condition of the stomach. Yet the question arises, Are we not still too persistent in our efforts to secure an early action of the bowel after abdominal section? The seeming necessity of this is so impressed upon us by custom and tradition that we always feel a sense of relief when a "down through movement" has been secured. If a bowel has not been materially disturbed by the operation, there should be no necessity for haste in procuring evacuation. If any portion of the bowel is parietic, it is a question if ever a big or often repeated doses of physic overcomes this paresis; certainly, if there is present postoperative mechanical obstruction it does no good and is often or always injurious.

After an abdominal section, for no matter how small a thing it may have been, even an interval appendix, the intestinal canal has been disturbed in its function, and injured by the traumatism of the operation. Nature, with our aid or forbearance, whichever way it may be put, has placed the wounded and bruised bowel in splints by throwing out an exudate at the seat of injury. If a bone is broken and the surrounding soft tissues are injured, we attempt to keep it protected by immobilization for a time, until Nature has had an opportunity to

rearrange the structures disarranged by traumatism. Later we may use massage to aid circulation of the part, to assist muscles to resume action in their normal planes, and to prevent crowding of nerve trunks, but at first we invariably aim to give the injured part rest. Why should not a gut be allowed the same consideration, why hurry catharsis and too early create exaggerated peristalsis in an organ injured by operation? The word injured is used advisedly in this connection. Gross damage is not implied, but the term is used to convey the idea that, no matter how carefully a gut may be handled, whether or not its lumen is entered, the gut must be disturbed for the time being, both in function and structure.

In discussing the use of cathartics in the so called "acute abdomen," it may be worth while at the start to note the changes which the treatment of peritoneal infection has undergone during the last half century. It is mentioned here from the fact that the symptom complex known as acute abdomen in the large majority of instances, unless these symptoms are relieved by operation, becomes a peritonitis, possible or actual. In the treatment of peritonitis, during the above mentioned period, the gamut has been run up and down from "putting the bowels in splints," "narcotizing the patient to within an inch of his life," up through the rigorous use of salines, and then back again somewhat toward the original proposition. There is this marked difference to be borne in mind, that our predecessors used the opium splint with the *fons et origo mali* undisturbed, while the surgeon of to-day attempts to remove the cause as the first step in treatment, even though he allows opium in aftertreatment.

No man would think for a moment of giving a cathartic if he knew there was present, in a given case, a perforated gastric or duodenal ulcer, a perforated appendix, or an opening in any other part of the alimentary canal from any cause whatsoever. Yet, how many times is the surgeon told, when a case comes to operation, that a cathartic has been given, often drastic and in heroic doses. The profession at large has not yet learned that in many instances of localized intestinal lesion, like an inflamed appendix, for instance, that "purgation means perforation" and resulting complications and often death of the patient as a result. This dictum of one of the most celebrated surgeons of the day, "purgation means perforation," should be constantly and firmly fixed in the mind of everyone who is practising medicine or surgery.

In no class of cases is there required more care in observation of symptoms, or more careful judgment in interpreting the meaning of these symptoms and drawing correct conclusions therefrom than in the acute abdomen. To distinguish between a case in which the patient is suffering acute pain from ptomaine poisoning, or from the presence of some indigestible substance in the alimentary canal, and one suffering pain from some organic lesion in some part of it, requires the most painstaking examination, the most careful consideration of symptoms, and the most thoughtful weight of evidence in each case presented. In the one a cathartic is indicated; in the other most markedly contraindicated.

Deaver and many others have described at length the points to be considered in differential diagnosis between the two conditions, but any man when brought into contact with an acute abdomen may have in many of these cases reasonable doubt as to with which condition he has to deal. In an acute abdomen from any cause, there may be high temperature or may not be, pulse rate may be increased in both conditions, usually is, but may not be present in either; usually there is initial vomiting in both. The older the textbook consulted, the more minutely and exactly will the symptomatology in differential diagnosis be given, and the less reliable will it be found in practice. Before the era of modern abdominal surgery and the exploratory incision, the elder diagnosticians elaborated widely in subdivisions, abdominal lesions, and the special symptoms attending each of these. At the present time the most astute surgeon does not feel that he has committed an unpardonable error should he suspect a low gallbladder and find a high appendix on opening the abdomen, neither would he feel otherwise than that he had done a good office for his patient should he diagnosticate a suppurating gallbladder and find a hemorrhagic pancreatitis at operation. In an acute abdomen, exploratory section in experienced hands should do no harm; cathartics, given without any more definite reason than to see if a movement of the bowels can be obtained, often hasten or are the principal factor in producing disastrous results. To a surgeon, in the interest of his patient, an exploratory section is much more satisfactory than a purely problematical or doubtful diagnosis and a resulting post mortem examination. And while it sometimes happens that an exploratory abdominal section is of no more benefit to the patient than an autopsy, it should be more satisfactory to both the patient and his friends. In justice to the patient with acute abdominal symptoms, a cathartic should never be administered until a decision has been reached as to whether he is suffering from disturbed function or organic lesion.

The most reliable symptom of acute abdominal lesion is involuntary rigidity. Everyone should make special effort to train himself to recognize this symptom. In every case of abdominal pain the patient will render tense the abdominal muscles during a paroxysm or during manipulation unless his attention can be distracted or he can control himself in this respect when directed to do so. In a nervous person who has in mind the possibilities of some impending abdominal trouble, of which the laity know so much at present, this is often almost impossible. However, during a careful and unhurried examination, there will come a time, even if only momentary, when the voluntary contraction can be eliminated. Involuntary rigidity is what is left behind when the will is not acting and over which the will has no control. If present it is the best evidence of acute intraabdominal lesion. Do not understand that this is always present in these cases or can always be demonstrated. The seat of lesion may be so deep in the abdomen that the peritoneum just below the abdominal muscles has not yet become sensitized and the muscles are not yet acting on the defensive. A deep posterior appendicitis

illustrates this condition. Here deep tenderness must be the principal symptom on which to base the diagnosis.

The foregoing statement in regard to rigidity must be somewhat modified in the acute abdomen of the traumatic variety. In this a blow has been received over the abdomen and the question to be decided is, whether or not there has been sustained a rupture of gut or injury to any other viscus. In these cases, very early, there may be stiffness of the muscles themselves, due to the direct force of the blow upon them, and this early rigidity may not be diagnostic of visceral injury. If this initial rigidity persists beyond a few hours, it becomes a true involuntary rigidity and is of diagnostic import. In a "traumatic abdomen" there may be no rigidity at first, but it may come on hours or days later. This is due to the fact that the gut may be simply bruised at first, to break down later through necrosis of the bruised area and then involuntary rigidity ensues. This occasional sequence of processes and symptoms in the "traumatic abdomen" emphasizes what has already been said in regard to administration of cathartics.

This is not in any way intended as a contribution to the literature of therapeutic nihilism. Drugs should always be used and that to their full power to meet conditions when indicated. A therapeutic nihilist is a cripple, floundering in the way, meanwhile calling to the passers by that he has thrown away his crutches. What is here written is intended as a suggestion to the surgeon that it may be best and possible further to modify preoperative and postoperative catharsis; and a plea to both the surgeon and general practitioner to study thoroughly conditions before administering cathartics in the "acute abdomen."

REMOVAL OF MUCOCELE OF APPENDIX.

BY J. W. KENNEDY, M. D.,
Philadelphia.

I feel that the removal of a mammoth appendix should be of sufficient interest to the profession to justify a somewhat detailed report.

CASE. The patient, a male, aged forty-eight years, had complained of paroxysms of right sided pains for a period of twenty-five years and to use his own words his "stomach never was right"; just another instance of the stomach being the central target for all inflammatory lesions, acute or chronic, of the abdomen. The patient had been treated for three supposed attacks of typhoid fever and an indefinite number of acute attacks of appendicitis. Did the patient ever have typhoid? If so, what effect might enteric fever have as to the etiology of the mucocele of appendix? We have had a good number of patients treated for recurring attacks of supposed typhoid from whom the removal of the appendix ended the typhoid history. I am of the opinion that the appendix bears relation to the etiology of typhoid, the organ being a storehouse for the impending typhoid infection. The patient came to the Joseph Price Hospital with all the cardinal symptoms of an acute appendicular abscess; temperature 103° F., pulse 110 with a large, tender mass in the appendicular region.

The removal of this appendix was a trying and

tedious procedure. It was difficult to recognize any line of dissection between the ascending colon and the appendix. The organ extended from its attachment at the head of the cecum to the right kidney. During the dissection of the appendix, I ruptured the organ, permitting the escape of the mucoid matter, which much resembled calf's foot jelly. There was no pus present, so it was hard to account for the acute history of pain, high temperature, accelerated pulse, etc. The appendix, upon its removal, measured eight and a half inches in length and eight inches in circumference. When I excised the appendix from the cecum, there was sufficient opening into the bowel to have inserted

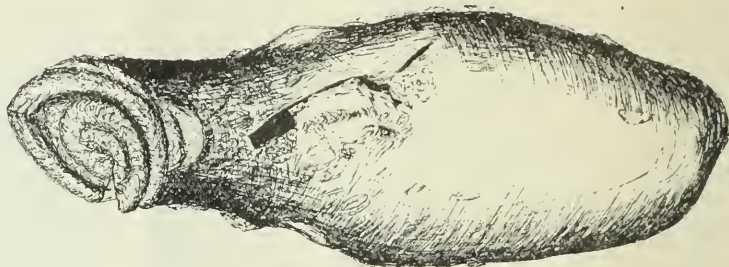


FIG.—Appendix, one half the size of specimen in preservation.

my four fingers. The accompanying drawing is one half the size of the specimen in preservation. The patient made an uninterrupted recovery. We are indebted to Dr. E. A. Case for the following laboratory report:

The specimen is a sausage shaped cystic mass, larger at one end than the other. The proximal extremity measures fifteen cm. long by 4.5 cm. at its greatest diameter. There appears to be a bit of mucosa from the cecum attached to the proximal extremity about the orifice of the appendix, which orifice was very small, just admitting a small probe. The outer surface is roughened by attached fibrous tags, probably adhesions. Wall measures three to five mm. in thickness and is firm. The contents of the cyst consists of a jellylike material, not unlike that seen in ovarian cystomata.

The microscopical examination shows that the normal appendicular tissue has disappeared, the wall consisting of connective tissue, which at the outer surface includes some areolar tissue and internally is more or less necrotic, with shreds of mucus resembling fibrin, but giving the reaction for mucoid material. Many polymorphonuclear leucocytes, fragmented nuclei, eosinophiles, plasma cells, and mononuclears may be seen infiltrating the wall, and in many places there is a moderate but distinct endothelial hyperplasia. Doctor McFarland concludes that the specimen is of inflammatory origin, the inflammation probably causing obstruction with the retention of mucoid material and the development of the mucocele. No evidence of malignancy could be found. Diagnosis: Mucocele of appendix (inflammatory in origin?).

241 NORTH EIGHTEENTH STREET.

THERAPEUTIC POSSIBILITIES OF MANUAL ADJUSTMENT.*

BY R. KENDRICK SMITH, M. D.,
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Modern medicine is rapidly putting into practice the adage "treat the patient, not the disease." To remove the cause is the keynote of the modern

*Read at the annual meeting of the American Association of Clinical Research, Academy of Medicine, New York, November 9, 1912.

method of treating disease, in contradistinction to that prevalent custom of the past, symptomatic treatment. When we found the statement in medical works, and it must be admitted that it was too often, "treat the symptoms as they arise," we knew it meant that science had not solved the riddle of the particular disease under consideration. Nowadays more frequently do we find this rule superseded by advice to search for some underlying causal factor.

"Structure precedes function," is the motto of those diagnosticians whose philosophy includes a mechanical pathology. If histology is a study of microscopic normal anatomy, and pathology a study of microscopic diseased anatomy, then it follows, according to the mechanical or anatomical school of practice, that morbid anatomy is a primary factor in etiology, hence adjustment of this morbid anatomy is a logical therapeutic procedure. Granting the logic of this contention, merely for the purpose of this paper, let us consider the subject of mechanical diagnosis of the cause of perverted function, and the methods of application of the technic of adjustment as a therapeutic measure.

At the last session of the American Medical Association no subject received more lively attention and caused more earnest discussion than the question of the absolute necessity of establishing a department of physical therapeutics in medical schools. Eminent speakers declared this was a vital measure, owing to the growth of therapeutic nihilism in the profession, the widespread loss of faith by the public in medicines and surgery, and last, but not least, because of the phenomenal growth of osteopathy and other methods of treatment. The equipment of all the great general hospitals with elaborate and expensive Zander apparatus and various other physical appliances, also shows the trend of modern medical thought.

A school for postgraduate instruction in spondylotherapy has been established, and several editions have been published of a work with the same title, describing a new school of practice based entirely upon mechanical, electrical, and thermal stimulation of spinal nerve centres. The first annual convention of the American Association for the Study of Spondylotherapy is announced for this month (November, 1912).

To-day the orthopedist and the surgeon are both extending the limits of their fields and including the treatment of innumerable organic and functional disorders which no one would have dreamed of classifying under their specialties a few years ago. It is natural for both specialists to conceive disease from the mechanical standpoint. They are mechanics, and the better mechanics they are the more radical and far seeing they will become in the application of their philosophy to the treatment of disease.

But there comes a parting of the ways. The surgeon is looked to for operative interference, for the use of the knife. The orthopedist is appealed to for the construction of apparatus to be worn for corrective purposes and for surgical operations upon bones and joints, and for static purposes and for the prescribing of gymnastics, massage, etc. Now we come to the plea set forth in the title of this paper,

namely, "manual adjustment." The surgeon cuts with his knife and the orthopedist moulds with his plaster casts. But is there not something left undone? Are they not limiting both their field of diagnosis and their therapeutic procedures? Why neglect the most perfect of all instruments? What knife or plaster has the intelligence of the human fingers? Every patient is a case in himself. Routine treatment is becoming a thing of the past. The skillful operator has brains in the ends of his fingers.

What palpation is to diagnosis, manual adjustment is to therapeutics. When all is said and done, does not the skillful diagnostician finally resort to the court of last appeal, his fingers? Does he not feel of the patient again, bearing in mind all the laboratory findings and the past history, in order finally to size up the situation and form his conclusions? Conversely, is it not instinctive, actually to take hold of an ailing body and attempt to fix it?

Anatomy and physiology are mechanical, and the microscope shows us that pathology is nothing more or less than the mechanism of disease, so it can be argued most logically that the scientific treatment for faulty mechanical conditions, be they macroscopic or microscopic, should be mechanical. The general practitioner of medicine readily grants the orthopedist his field for the correction of gross deformities, and in this latter day revolution in practice is even considering that mechanics may be a factor in disorders of nutrition due to ptoses, etc. But, unless he has permitted his scientific imagination to soar a bit, he may not be willing to admit the efficacy of mechanical treatment for remote, obscure, systemic or organic diseases. Yet it is not mechanical physicians alone who have admitted the possibilities of adjustment for diseases of internal organs. For instance, no less a person than Richard Cabot, in the last edition of his *Case Histories in Medicine*, published last year, made a startling statement regarding that most intractable and tragic disease, angina pectoris. He said: "A masseur or an osteopath sometimes cures or greatly relieves patients whom regular practitioners have failed to help. We are much in need of further light in this direction." Dr. Henry R. Harrower, of Chicago, in the discussion of a paper which it was my privilege to read at a recent session of this association, declared that he had personally witnessed the re-establishment of cardiac activity in apparently moribund cases of pneumonia by the application of percussion to the spine in the upper dorsal area. At the same meeting, a member from Ohio astonished his hearers by stating that he had been cured of a chronic appendicitis by osteopathic adjustment of a lower dorsal vertebra, after a number of physicians and surgeons had failed in their treatment and had appealed to the knife as the court of last resort. Dr. Albert Abrams, of San Francisco, cites innumerable cases of great variety, including such unbelievable instances as aneurysm of the aorta cured by spinal treatment.

In last week's number of the *NEW YORK MEDICAL JOURNAL* the doctors Cyriax, of London, in an article replying to certain statements made by the writer before this association, cites countless eminent European authorities in support of various

mechanical stimulations and inhibitions of the abdominal sympathetic "for the treatment of a very large number of both thoracic and abdominal complaints, including cystitis, paralytic bladder conditions, irregular menstruation, impotence, leucorrhea, prolapsus ani, catalepsy, dyspepsia, chronic gastritis, etc." While the doctors Cyriax disagree with the writer over the question of priority of such application of mechanics for visceral disease, the latter would pay the highest tribute to the splendid work done by these English specialists in their method, and would raise only the question of the relative value of the two different procedures in question. Their method is confined exclusively to mechanical treatment of the nerve centres themselves, while the writer has always emphasized instead the far greater value, for permanent results, of the adjustment of the skeletal structures which are found often to cause interference with the nerves at their spinal origin or to create vasomotor interference with the arterial or venous supply of the sympathetics.

In Chicago the A. T. Still Research Institute is now established in a building of its own and has an endowment of a quarter of million dollars contributed by osteopathic physicians for the exclusive purpose of research along the lines of structural derangement as a cause of disease and adjustment as a therapeutic agent.

As an instance of one of the frequent causes of mechanical derangement of the skeletal structure, and one of the sort of cases which can be definitely traced from the standpoint of etiology, symptomatology, and therapeutics, because the exact date of the causal factor can be so definitely fixed, stand conspicuously those static skeletal lesions produced secondarily to prolonged general anesthesia. These conditions are usually overlooked because the attention of the attending physician, the consultants, and the surgeon is focused upon the complaint which has been found sufficiently serious to necessitate surgical interference. Take, for instance, this case: Two years ago the patient had a successful abdominal operation; complete loss of memory has persisted ever since, but no consultant has ascertained why. No consultant has ever made any complete physical examination to ascertain the cause, but all have confined their attention to the field of the surgical operation. A week ago this case was examined from the mechanical standpoint, disclosing the fact that upper cervical mobility was markedly limited in every direction. In the two upper cervical articulations there were adhesions and specific subluxations. Radical reduction was successful, adhesions easily were broken down, and mobility was restored in one operation. It was my pleasure to see this case two days ago and to receive the report that memory is returning rapidly.

On this same line, it was interesting to hear Doctor Roberts at the New York Post-Graduate Hospital, only yesterday reiterate the statement that relaxation of articulations, particularly the sacroiliac, frequently occurred during prolonged general anesthesia and particularly during the enforced recumbency of convalescence, resulting in severe subjective symptoms. Doctor Goldthwaite, of Boston, has also called attention to this point. In the ortho-

pedic department of the Massachusetts General Hospital the writer was shown a practical prophylactic device. A plaster of Paris mould is taken of the patient's dorsal, lumbar, and sacral area before operation, and covered with felt. The patient rests in this firm cradle during the operation and during convalescence, thus preventing relaxation, strain, or subluxation and the consequent backache and weakness. The writer always uses this procedure in major surgical cases, finding it particularly important in cases where the stirrups are used for a prolonged period, as this position flexes the thighs to the extreme and consequently rotates the pelvis backward, obliterates the lumbar lordosis, and brings great strain on the sacroiliac ligaments.

Doctor Rogers, in a clinic at the Massachusetts General Hospital this summer, said that in his researches he had never found a single case of primary sciatica, every case being secondary to sacroiliac strain. He declared that in his belief there were no cases of primary sciatica.

The most severe case of "renal colic" which it has been the fortune of the writer to see, one attended by a dozen members of the staff of a great Boston hospital, where surgical interference was the unanimous advice after exhausting all other regular procedures, was cured instantly by manual adjustment of the ninth dorsal vertebra, which was palpably out of its normal position. Frequent reports during the past five years are that there has been no recurrence of the colic and the patient has been in robust health.

In the New York Orthopedic Hospital, outpatient clinic, yesterday, the writer observed that in the many cases examined there was always a relation between the vertebral pathology and the complaint.

What, then, is the therapeutic possibility of manual adjustment? For answer take a bird's eye view of the body as a whole, not the classical method of inspection, but from the viewpoint of the mechanics of the body rather than from the conventional standpoint of so called physical diagnosis, which means an attempt to name a disease, rather than an endeavor to find errors of static or motor mechanics.

Inspect poise, posture, gait; find the centre of gravity, record overdevelopment or underdevelopment, spasticity or atrophy, mobility or immobility, ankylosis or stretched ligaments, local anesthesia or hyperesthesia, etc. Estimate the values mechanically. Get the proper sense of proportion. What is the general picture, not by the traditional clinical method, but from the standpoint of human mechanism? Where is the greatest strain, dorsal, abdominal or pelvic? Is visceral ptosis an obvious factor?

Most vital should be the observation of the central spinal axis. Use the plumb line. Do not take the superficial method of trying with the plumb line down from the upper cervical region to ascertain the vertical alignment, but the reverse. With the plumb line in the cleft of the buttock, follow it upward with the eye to see if the spinous processes are in alignment with it. Do not be satisfied with the consideration of lateral deviation only. Consider most carefully the anteroposterior curves in relation to the centre of gravity. You cannot have

alteration of the normal anteroposterior curves without a loss of equilibrium, resulting in chronic muscle strain in the endeavor to compensate and maintain poise. Alteration in these curves upsets the support of abdominal viscera, strains mesenteric attachments, permits ptosis and the innumerable complications resultant therefrom.

A much neglected factor in mechanical diagnosis in general practice is the costal alignment. Much more is dependent upon the maintenance of an equal distance between the ribs than might be expected at first thought. The normal slant of the ribs predisposes to their sagging when there is lack of tonicity or underdevelopment of the intercostal muscles, and the mobility of the costovertebral articulations is so great that trauma is a frequent cause of slight derangement of individual ribs. Either sagging or individual displacement may cause pressure on intercostal nerves. While at first thought the general practitioner might not expect anything more than a local neuralgia or neuritis from such a condition, it can easily be seen how this pressure could, if continued, result in a reflex disturbance of the corresponding spinal segment and through it, by the anterior nerves, an actual change of function of organs whose nerve supply emanates from this section of the cord, or, in other words, a visceral disease.

From the general inspection, the mechanical physician proceeds to a more detailed examination of the supporting structures. He examines by superficial and deep palpation the comparative position of each vertebra, and tests thoroughly the degree of mobility of each vertebral and costovertebral articulation. The function of a joint is motion. Each joint has certain normal degrees of mobility. Alteration of mobility is a change of function and is, therefore, pathological. The significance of this pathological condition is not confined to the joint itself. Its importance is far reaching. When the diagnostician discovers altered function in a joint he should at once consider to what degree it can interfere with adjacent nerve structure, and what effect that interference may have upon organs controlled by such nerves.

Completing the mechanical diagnosis, the problem of adjustment becomes more a matter of art than of ironclad rule. Manual adjustment can no more be taught didactically or by textbook than can surgery. It is an art. Arriving at the diagnosis by the most scientific means of mechanical analysis, manual correction becomes a matter of personal skill in the accurate and delicate application of force with the fingers for the purpose of securing the greatest mechanical advantage with the certainty of avoiding injury, yet of accomplishing a distinctly corrective change in the relative position of lever and fulcrum.

In the discussion of previous papers upon this subject in the sessions of this society, the point has been raised that mechanical therapeutics was indicated in mechanical conditions and contraindicated in all other conditions. Is not this begging the question? If histology and pathology have been correctly defined, are there any conditions of the living organism which have not a mechanical aspect?

Attending physicians are glad to secure the assistance of specialists in many conditions, and if manual adjustment offers a new and better method of correcting some conditions hitherto not considered mechanical, surely this will be welcome news, and the operators in this specialty will be placed in the list available at the doctor's call.

19 ARLINGTON STREET.

UNCONSCIOUS IMPAIRMENT OF VISION.*

Serious Conditions of which Patients are Unaware.

By S. E. PENDEXTER, M. D.,

East Orange, N. J.,

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The object of this paper is to call the attention of the general practitioner to that vast army of visual defectives, who, not realizing the seriousness of their condition, neglect to have their vision tested, and grope about this world, with surprising agility however, with poor vision which could readily be improved or perfected. The writer advisedly omits those cases of asthenopia and mild degrees of astigmatism, which more often give rise to symptoms such as headache or vertigo. Also for the sake of brevity this paper will be limited to refractive errors.

Many patients do not realize that their vision is only half that of normal, or that they are blind in one eye without knowing that they have never had all the pleasures and benefits of binocular vision. The near sighted or myopic eye sees well within a certain range, and magnifies near objects. The ciliary muscle is at rest when the patient looks at a certain distance, but beyond this distance all objects appear blurred. Such a patient is like one constantly in a dense fog. Often these patients do not realize what they miss because they have never been able to see well at a distance. To illustrate this I will mention a certain case, that of a companion, whose eyes I examined eleven years ago. To my surprise, I found that his vision was only 20/40. He had 1.5 diopter of myopia in each eye. This patient had been without glasses until he was nineteen years old, when the foregoing correction was given him. His vision, formerly 20/40, became, with the proper correction, 20/20. He did not realize how much he was hampered until he began to wear glasses, when he said that he never knew that the world was so beautiful. He has worn the glasses ever since.

I will now cite a case of a higher degree of myopia which was neglected for seven years after the age when the eyes were needed for study at school.

CASE I. J. V., aged twelve years, April 24, 1911. Had to stand within a few inches of the test card in order to see it at all.

O.D.-12.00 D.S.-1.00 D.C. ax 180.

O.S.-10.00 D.S.

The correction, which is about three fourths of the actual error, brings the patients vision up to 20/50.

In the following case the eyes were neglected even longer.

*Read before the Clinical Society of the New York Throat, Nose, and Lung Hospital, December 10, 1912.

CASE II. J. J. C., aged thirty-one years. August 8, 1912. Realized that he could not see well, but had never worn glasses. The vision in each eye was 6/200.

O.D. -7.00 D.S. } Vision 20/40.
O.S. -7.00 D.S. }

Frequently the ophthalmologist is amazed to find how many years patients have groped about in partial blindness, when a pair of glasses would have relieved their unfortunate condition.

There is another error of refraction which also causes the patient to have a blurred vision. Such patients never observe a distant landscape nor a printed page except in a distorted form. The writer refers to the different varieties of astigmatism. Astigmatism is often accompanied by severe headache, and the sufferer is advised to have his or her eyes refracted, yet the oculist is constantly observing cases of simple, compound, or mixed astigmatism of a marked degree in which no history of headache is given. The following cases illustrate this:

CASE III. F. E., aged sixteen years, August 5, 1912. Vision in each eye was 20/40. The patient had been advised by the school physician to have her eyes examined, but neglected to do so. But now (August 5, 1912) she was unable to obtain a certain position until she procured glasses to enable her to see better.

O.D. + 1.50 D.S. + 1.50 D.C. ax 105.

O.S. + 1.50 D.S. + 1.50 D.C. ax 105.

With the proper correction her vision was 20/20.

CASE IV. E. L. H., aged twenty-five years, July 30, 1906. Vision = 10/70.

O.D. + 1.50 D.S. - 5.50 D.C. ax 180.

O.S. + 1.50 D.S. - 5.50 D.C. ax 180.

Vision with correction = 20/30.

This patient used to have no discomfort without his glasses, but he now prefers to wear them on account of the better vision afforded by them.

CASE V. F. C. W., aged fifty years, August 30, 1912. Vision in each eye was 10/70.

This patient had five diopters of myopic astigmatism in each eye, axis oblique, and presbyopia which required a correction of + 2.00 D.S. to read. The patient had no discomfort and refused to wear glasses for distance.

These patients do not see normally at any time without glasses, for they are unable to overcome the distortion caused by symmetry of the refractive media of the eye by any action of the ocular muscles. The inability of these patients to overcome their error by the action of the muscles of the eye accounts for the lack of strain on the ciliary muscle and its nerves, hence the absence of symptoms.

Far sighted or hypermetropic patients are also often unaware of their visual defects. In fact these patients usually think that their vision is good, or at least they become so accustomed to the constant strain upon the ciliary muscles necessary to see at any distance that they do not complain of the eyes becoming tired. But with the higher degrees of hypermetropia the ciliary muscle is unable to accommodate sufficiently to overcome the hypermetropia and the patient's vision necessarily is very indistinct. Although at no distance does the hypermetropic eye see with the ciliary muscle at rest, yet these patients, with an active accommodation, are able to see at a distance and nearby surprisingly well. To exemplify this, let any of us who are under the presbyopic age place minus two or three spheres in front of both eyes. The vision may be 20/20. Hypermetropia is undoubtedly to the patient the most elusive of all refractive errors.

Why then do such patients consult an ophthal-

mologist? A child is sent by the school physician. The patient has a conjunctivitis, beginning presbyopia, some coincident malady, or an examination for employment reveals the imperfect eyesight. Then the patient learns of his defective vision, perhaps late in life, for the first time. The following illustrate typical cases of hypermetropia:

CASE VI. H. R., aged eleven years, March 14, 1911. Sent to the clinic of the New York Throat, Nose, and Lung Hospital by the school physician. He said he could read writing on the black board at school. Vision = 20/50.

O.D. + 5.00 D.S. + 2.00 D.C. ax 90.

O.S. + 5.50 D.S.

With the proper correction the vision was 20/20 in the left eye, and 20/100 in the right eye.

CASE VII.—J. C., aged sixty-two years, August 5, 1912. Complained only of being unable to read. Vision = 20/40.

O.U. + 2.00 D.S. for distance.

O.U. + 5.00 D.S. for near vision.

The vision with correction is 20/20. Reads J. No. 1.

Now we will consider those cases in which there is a marked inequality in the state of refraction of the two eyes, or anisometropia. In these cases also the patient may have a marked error of refraction in one or both eyes without any serious symptoms. The patient may be practically blind in one eye, but is not cognizant of the fact because of good vision in the other eye. Both eyes may be defective with an unequal degree of the same refractive error or because of two or more entirely different conditions of ametropia. An interesting case of this class is as follows:

CASE VIII. A. M. C., aged forty years, July 25, 1905. Vision = O.D., limited to a few inches, O.S., 20/30.

O.D. - 8.00 D.S.

O.S. - 1.50 D.S.

This patient was perfectly satisfied without wearing glasses, and refused to do so. He saw at a distance with his left eye and read with his right eye.

These cases should not be neglected, especially those in which the error of refraction in one eye is so great that the eye is little used, for the defect may go from bad to worse until the eye is hopelessly blind.

An ametropic condition which is often neglected is that which usually accompanies squint or strabismus. Cross eyes or divergent eyes are often made straight by nonoperative treatment, such as the wearing of glasses, judicious instillation of atropine, exercise of the squinting eye or its muscles, the use of the stereoscope, or other instrument for inducing binocular vision or by combining these methods. Neglect in these cases not only increases the disfigurement, but the squinting eye may become amblyopic, and the ultimate prognosis as regards the restoring of binocular vision becomes progressively worse. These patients constantly consult the oculist because of the squint, not on account of the refractive error which is now recognized to be the common cause of their strabismus.

The foregoing cases, picked somewhat at random, show that a patient may have practically any error of refraction and to a marked degree without being aware of defective eyesight. The writer wishes to emphasize the fact that a moderate error of refraction, especially with a close application of the eyes, is the one that patients complain about bitterly, while a serious impairment of vision often gives the patient no discomfort save that he (often unknowingly) is partially blind.

It is interesting to note that among one thousand consecutive patients examined at the New York Throat, Nose, and Lung Hospital, 442, or forty-four per cent., disclosed an error of two or more diopters. This class is the one in which patients often complain of no symptoms and are unaware of their defective eyesight. To conclude, the writer would advise that the general practitioner insist on having the vision of all patients tested whether they complain or not.

6 SOUTH ARLINGTON AVENUE.

EPIDEMIC CEREBROSPINAL MENINGITIS.

With a Description of Some Atypical Symptoms.

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While studying a small series of epidemic cerebrospinal meningitis cases, I was impressed by the fact that the cases reported in the literature presented only the classical symptoms, so this paper will deal primarily with the confusing, atypical ones. It will include a brief description of symptoms, method of diagnosis and treatment, along with a more detailed account of several atypical cases.

The present epidemic in the southern States seems to belong to that series which started in New York in 1904, extended to Germany in 1905, to France in 1908, and to Texas and adjacent States in 1911. The disease was reported in Dallas in October, and though it rapidly spread over the State, El Paso was exempt till March, 1912, at which time a thirteen year old girl took sick with meningitis four days after her arrival from Shreveport, La., where the disease was prevalent.

The weather was warm throughout the time of the local epidemic, with the exception of a few scattered cold days. Following each of these changes in temperature, coryzas were prevalent, which seemed to stir up latent organisms in the nasopharynx of certain individuals, and a few days later three or four cases of meningitis would appear in different portions of the town. In only two families was more than one member attacked; in one a baby was taken sick three days after the mother; and in the other, the mother had the disease three weeks after her child was well—and she had given negative nose and throat cultures when the child's quarantine was raised.

We found the most constant symptoms to be a relative rigidity of the neck, Kernig sign, vomiting, and fever. The first symptom was present in every case, as was the Kernig sign, though the latter often did not show until the second day. Vomiting was not present in two cases; and there was an absence of fever throughout the illness in the same number.

The first afebrile case was cured after five doses of serum; while the second one received only one injection of ten c. c. serum, over the protest of the mother, further treatment being refused. After a three months' interval, the child is apparently well, with the exception of a limitation of motion in the knee joints. Another case, seen in consultation, became afebrile after one injection of forty c. c. serum. Because of this (in spite of the bac-

teriological findings), the original diagnosis of "rheumatism" was reverted to and further treatment refused. The commonly described bladder, eye, and peripheral nerve sequelæ developed (in the sequence named), and the patient is still bedridden and helpless at the end of six months.

I had two patients with hyperpyrexia (seen late in the disease), temperature 107° and 107.8° F. respectively. The former died within twelve hours, but the latter had temperature lowered to 103° F. (following iced alcohol sponge), where it remained until death occurred two days later.

No positive diagnosis of epidemic meningitis was made till a smear from spinal fluid had been examined for Gram negative intracellular diplococci, and the findings confirmed by a culture. Treatment, however, was not withheld pending the microscopical report, for whenever clinical symptoms are sufficient to warrant a lumbar puncture, an injection of serum is justified.

Three lumbar puncture findings (in cases clinically meningitic) require interpretation: 1. Cloudy fluid; 2, limpid fluid; and, 3, "dry taps." Examinations of cloudy fluid always showed meningococcus in both smears and cultures. Whereas in the limpid fluid practically no pus cells or organisms could be found (even in centrifugalized specimens), though cultures were all positive. A "dry tap," when puncture is properly done and the lumen of the needle is not occluded, is nearly always due to either a lack of pressure sufficient to cause flow through needle or a fibrinous condition of the spinal fluid. If the obturator is withdrawn from the trocar with a slight jerk a small amount of fluid will generally be aspirated. The wet obturator tip is then stroked over blood serum in culture tubes. Sometimes a flow can be started through the trocar by aspirating with a hypodermic syringe. Out of 184 lumbar punctures in suspected meningitis cases, sixty-four were "dry taps" and sixty of these gave positive cultures.

The mortality of this series of thirty cases was practically twenty-five per cent., including those cases moribund when seen. The prognosis was good in *all* cases with a cloudy spinal fluid, in which treatment was begun early in the disease; whereas it was uniformly bad in the four cases with clear fluid, irrespective of promptness in administering serum. The Mexicans, in spite of their squalid surroundings, seemed to be more resistant, and responded to treatment better than the whites.

All serum was given by the gravity method; a Quincke lumbar puncture needle, fourteen inch piece of gum tubing, and a small funnel, constituting the apparatus used. I never found any need for a general anesthetic, the injection being practically painless, the patients being held with the back well arched by means of a bandage passed around the neck and under the knees. The amount of fluid removed at a puncture is of little help in determining the quantity of serum to inject. Numerous times we were able to give twenty c. c. following a dry tap, whereas after the removal of 140 c. c. we were able to replace only ten to fifteen c. c. If too much serum has been injected, or with too great rapidity, there will be a complaint of pain in the legs, if the patient is conscious, or a twitching if he is unconscious. During the administration of

serum the funnel is frequently lowered to the level of the needle, so as to permit the fluid under pressure to siphon back; and pressure should always be equalized in this way before withdrawing the needle.

I did not find it practical to always use a sphygmanometer, because of resisting patients. However, I was fortunate in having used a mercury manometer on three patients when they went into collapse. There was no difference in the readings before, during, or twenty minutes after the collapse.

Cultures were made at each lumbar puncture as a matter of routine, and serum was injected daily till the spinal fluid was sterile. In fulminating cases serum was given every six hours. The temperature should be ignored as an indication of when to stop administration of serum, as a normal temperature does not mean an absence of the meningococcus.

The untoward effects from the use of serum were collapse and urticaria; I had no deaths within ten hours of an injection. Collapse is best treated by siphoning back the serum and keeping up artificial respiration; small doses of atropine and epinephrine are of help. Urticaria was seen in several cases. In one patient, during an injection, wheals suddenly developed and the entire body became bright red; the subcutaneous administration of epinephrine caused both urticaria and redness to disappear at once. In another case, sixteen hours after an injection of serum, there was a marked edema of head and extremities, accompanied by a giant urticaria. The lips were so swollen that the mouth could not be closed, and the scalp was thrown into immense longitudinal ridges. The entire phenomenon disappeared in a few hours. No treatment was used except sponging with a ten per cent. solution of menthol in alcohol to relieve itching.

The following cases illustrate points not generally mentioned in descriptions of this disease, but which were commonly seen in this series. The first case is reported to call attention to how misleading the temperature is as an indicator to the state of disease—there being positive cultures on four days after temperature was normal. It also illustrates another common phenomenon; on the day following the initial injection of serum there was a very small amount of fluid removed (or a dry tap), on the succeeding day there was a profuse flow, and similarly, alternating throughout the disease.

CASE I. S. R., Mexican, male, nine years old. On March 16th was given thirty c. c. serum by family physician, and temperature became normal. Received no further treatment till I saw case on March 26th, when there was a marked opisthotonos and Kernig sign.

Date.	Temperature (F.).	Fluid removed.	Serum injected.	Culture.
March 26.....	104.5	60 c. c.	30 c. c.	+
March 27.....	102.5	5 c. c.	28 c. c.	+
March 28.....	102.5	50 c. c.	30 c. c.	+
March 29.....	98.6	3 c. c.	20 c. c.	+
March 30.....	99.0	20 c. c.	20 c. c.	+
March 31.....	98.0	.....	20 c. c.	+
April 1.....	98.0	.....	.....	..
April 2.....	98.0	10 c. c.	15 c. c.	+
April 3.....	98.0	40 c. c.	20 c. c.	—

Discharged cured, April 13th; treatment, eight injections, or a total of 183 c. c. serum.

CASE II. Mrs. W. C. W., white, twenty-eight years old. Sick four days with severe headache, nausea, and painful stiffness of neck (which was first noticed when she attempted to button her shoes). When I saw patient she was comatose, had stertorous breathing, rigid neck, Ker-

nig sign, petechial rash, temperature 103° F., and she was apparently moribund.

First tap removed 60 c. c. cloudy fluid (smear and culture +). Four injections of serum were given in first twenty-four hours, at end of which time patient was rational and her temperature normal. On third day temperature rose to 100° F., and patient complained of headache, so another injection was given. Cephalgia and fever disappeared on the following day; treatment comprised five injections, or 80 c. c. serum.

This case illustrates the value of injection at short intervals in apparently hopeless cases, and also the necessity of injection in spite of "dry taps."

CASE III. P. G., female, white, four years old. Taken sick May 8th, 9 a. m., with vomiting which continued at intervals all day; 7 p. m. temperature 98.6° F.; 8 p. m. temperature 101° F.; May 9th, 6 a. m. rash brightened and tentative diagnosis of scarlet fever made by family physician; 11 a. m. rash began fading and disappeared in a few hours. I saw case in afternoon; temperature 104° F., no Kernig sign. An almost imperceptible difference in the rigidity of the neck in two examinations, four hours apart, caused injection of serum in spite of an improvement in clinical symptoms, forty c. c. of perfectly clear spinal fluid was removed. Meningococcus was recovered in culture; centrifugalized specimen showed practically no pus cells. Slight rigidity of neck and suggestive Kernig sign on morning of May 10th; death occurred at midnight. Temperature ranged from 103° to 105° F. throughout course of disease, and neither drugs nor baths affected it. Serum injected three times (45 c. c.), and fluid withdrawn was clear each time as already described. On night of second day of illness patient began to show signs of fear, resented noises and bright lights, and refused to drink. At this time resemblance of symptoms to those of rabies was remarked. Capillaries of skin lost tonicity twenty-four hours before the end. Opisthotonos and macular rash appeared half an hour before death, along with cephalic cry.

I regard this as a true fulminating case in which the poison paralyzed the autonomic centres, and so acted that there was not sufficient resistance even to cause formation of pus. The poison is comparable in toxicity and action to that of rabies, and the prognosis is equally bad.

CASE IV. A. McC., male, white, four years, sick five days. When first seen, with family physician, was in a moribund condition, having continuous convulsions; right side of face paralyzed, rigidity of neck and positive Kernig sign.

Date.	Time.	Temperature (F.).	Fluid removed.	Serum injected.	Culture.
May 17.....	7:00 p. m.	103°	90 c. c.	20 c. c.	+
	11:45 p. m.	102°	30 c. c.	10 c. c.	+
May 18.....	3:00 a. m.	Patient rational			
	9:00 a. m.	101°	140 c. c.	35 c. c.	+
	5:00 p. m.	102°	140 c. c.	19 c. c.	+
May 19.....	9:00 a. m.	102.5°	140 c. c.	15 c. c.	+
	5:00 p. m.	104°	90 c. c.	15 c. c.	+

More frequent injections were not given because of parental opposition. Macular rash and Hippocratic facies appeared on second day. Patient became comatose and died on morning of fourth day.

With first puncture 60 c. c. of limpid fluid was obtained: when flow had practically ceased patient was placed in an upright position and with a sudden gush 30 c. c. of blood tinged amber fluid appeared, which had apparently been walled off. Microscopical examination showed large lymphocytes to predominate, with a few scattered leucocytes containing diplococci. At all other punctures, the spinal fluid was amber colored and turbid.

CASE V. R. P., male, white, age eleven; sick two days. Seen August 17th with vomiting, Kernig sign, orthotonos, temperature 105° F. and acute retention of urine, due probably to an old phimosis, which necessitated catheterization throughout illness. Temperature was normal and culture negative on seventh day. On the following day fever reappeared, respirations became rapid, and bronchial breathing with râles was present over right upper lobe. Five days later process had extended to upper left lobe. Pneumonia remained central (average respiration 38, temperature 104° F., pulse 140), clearing up by lysis, temperature

becoming normal on September 13th. No sputum could be obtained for examination, so we have to assume that we were dealing with a meningococcic infection of the lungs.

In two other similar cases of this series, seen late in the disease, when the resistance of the patients became low, the spinal cord was reinfected from the lungs and the patients died. In one of the cases the spinal fluid was clear and sterile for sixteen days before reinfection.

On the theory that it would stimulate the formation of antibodies, three full doses of a commercial meningobacterin were given on succeeding days. There were no anaphylactic signs and the general average of temperature was permanently lowered one half degree; no more vaccine could be obtained, hence no positive conclusions can be drawn as to its value in this case.

Three lumbar punctures were done during the course of the pneumonia, and prophylactic doses of serum given, but the fluid was found to be sterile each time. The heart became enlarged with the advent of pneumonia, and a diastolic murmur appeared along the left sternal border. This cleared up with convalescence.

Nervousness is the most difficult symptom to combat in these pulmonary cases; tremors become choreiform in character and grow worse with the progress of the disease. In this patient we were able entirely to control them with hydrotherapy and large doses of brometone.

The patient is now (October 12th) entirely well and shows no bad signs of any kind from his illness. Fourteen injections, or 225 c. c. of serum were used.

SUMMARY.

1. The only early constant diagnostic sign is a relative rigidity of neck.
2. A clear spinal fluid indicates a bad prognosis.
3. The temperature is a misleading criterion as to state of disease; treatments should be continued till spinal fluid is sterile.
4. Method of injection should be by gravity; amount of fluid withdrawn bears no relation to size of dose of serum, which should be determined by: (a) the rate of flow of serum; (b) amount of discomfort caused patient, and (c) quantity that can be given without using pressure.
5. Serum should be given at least once a day, and in severe cases every six hours.
6. Vigorously treated cases, if seen early, will have no bad after effects.

404 ROBERTS-BANNER BUILDING.

THE EFFECT OF DIPLODIA ZEÆ AND SOME OTHER FUNGI UPON SOME PHOSPHORUS COMPOUNDS OF MAIZE.*

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In a recent paper¹ the writer has called attention to the presence of the fungus, *Diplodia zeæ* upon

*Paper No. 19. From the laboratory of Plant Pathology, Virginia Polytechnic Institute, Blacksburg, Va.

¹The Fungus, *Diplodia*, as a Possible Factor in the Etiology of Pellagra, NEW YORK MEDICAL JOURNAL, xci, 164, 1910.

maize and to the possibility that this fungus may play a rôle in the etiology of pellagra. Data were presented showing that following the growth of the fungus a toxic substance was generated in the maize which was believed to be similar to or identical with the "pellagrozein" of Lombroso. The investigation of protein constituents of mouldy maize is still under way, in the meantime some data have been secured upon the relation of phosphorus compounds of maize.

The idea that spoiled or mouldy maize may contain larger amounts of inorganic constituents would seem to be a logical assumption, since it is well known that the active respiration of the moulds and bacteria oxidizes large amounts of the carbon compounds. Black and Alsberg² found, however, that a badly spoiled maize was not always characterized by a high ash content, although in Italy a high ash content is regarded as significant.

The object of this contribution is to bring together some data on the presence and possible significance of inorganic phosphates in maize inoculated with pure cultures of mould fungi, along with some samples of moulded commercial corn.

The fact that a water extract of mouldy maize contained more material precipitable by basic lead acetate than the water extract of sound maize was noted in my earlier work. Following this suggestion an investigation of the phosphorus compounds was in progress when the noteworthy paper of Crawford³ appeared. His conclusions are: "The chief poisonous principle in certain cottonseed meals is a salt of pyrophosphoric acid. In some this salt seems to be a simple one, presumably inorganic, while in others it is more complex, perhaps an organic one."

Without discussing *in extenso* Crawford's work, it may be said that he has found no entirely satisfactory way for distinguishing between the salts of pyrophosphoric acid and salts of other forms of phosphoric acid, but from their chemical and biological effects he regards them as pyro salts.

Near the time at which Crawford's paper appeared, the work of Forbes⁴ was published, giving an account of methods of analysis which seemed likely to prove of value in the study of maize and the changes in it due to fungi. Where this method was used the procedure was as follows:

Ten gramme samples were extracted with 300 c. c. of 0.2 per cent. hydrochloric acid for three hours in stoppered flasks with frequent shaking. The extracts were easily filtered through dry filters and 250 c. c. of each withdrawn and precipitated by the addition of 15 c. c. of magnesia mixture and 15 c. c. of strong ammonia. The following day the magnesium precipitate was filtered out and carefully washed on the filter, first with 2.5 per cent. ammonia, then with 95 per cent. alcohol. The inorganic phosphates were separated from this precipitate by extraction overnight in 100 c. c. of 95 per cent. alcohol containing 0.2 per cent. of nitric acid. After filtration through a dry double filter, 75 c. c. of the extract was pipetted out and evaporated to moist dryness. The residue was then dissolved in dilute nitric acid and the phosphorus determined gravimetrically in the usual manner.

²O. F. Black and C. L. Alsberg: The Determination of the Deterioration of Maize with Incidental Reference to Pellagra, *Bulletin* 199, Bureau of Plant Industry, U. S. Department of Agriculture, 1910.

³A. C. Crawford: A Poisonous Principle in Certain Cottonseed Meals, *Journal of Pharmacological and Experimental Therapeutics*, i, 519, 1910.

⁴E. B. Forbes, A. Lehman, R. C. Collison, and A. C. Whittier: Methods for the Quantitative Estimation of Inorganic Phosphorus in Vegetable and Animal Substances, *Bulletin* 215, Ohio Agricultural Experiment Station, 1910.

The acid alcohol extraction is believed by Forbes to give satisfactory separation of the organic and inorganic phosphorus compounds. After some preliminary studies the following analyses were made, using the methods described by Forbes:

Sample I, weighing ten grammes of air dry, was sound, finely ground maize.

Sample II, weighing ten grammes of air dry meal upon which *Diplodia zeæ* had been grown for four months. The meal had been sterilized and inoculated and the fungus grown under pure culture conditions in a cotton plugged bottle. After being air dried the meal had been ground fine in a porcelain mortar. Both samples of meal were originally taken from the same source.

The analyses made by the foregoing methods gave in sample I inorganic phosphorus, calculated as P_2O_5 0.0192 per cent.; in sample II, inorganic phosphorus calculated as P_2O_5 0.9488 per cent.⁵

From this analysis it appears that the growth of *diplodia* on the meal for four months increased the inorganic phosphorus nearly fifty times. This increased inorganic phosphorus must arise from the degradation of organic phosphorus and alter by so much the value of maize for food purposes.

Investigation was also made of maize meal which had supported a pure culture growth of *diplodia* for fourteen months. This meal was completely blackened by the action of the fungus and had lost considerably in weight. As before, the samples were finely ground in a mortar and air dried. The purpose of this examination was to compare the extract obtained with dilute hydrochloric acid with that obtained by the action of pepsin and pancreatin:

Sample V was 50 grammes of *diplodia* meal digested in 300 c. c. of 0.3 per cent. hydrochloric acid.

Sample VI was 50 grammes of *diplodia* meal digested in 300 c. c. of 0.3 per cent. hydrochloric acid containing 0.2 gramme pepsin. Both samples were kept in the incubator at a temperature of 37° C. After twenty-four hours each sample received 0.5 gramme salicylic acid to retard the growth of microorganisms. Sample VI was then neutralized with soda and then received 0.2 gramme pancreatin and one gramme anhydrous sodium carbonate. Both samples were then returned to the incubator for another twenty-four hour period. After the pancreatin had acted twenty-four hours, both extracts were filtered through paper with washing. The filtrate was divided into two equal portions and the phosphates of one portion were precipitated by adding 50 c. c. of strong ammonia and 50 c. c. magnesia mixture. In this case I did not attempt to separate the inorganic phosphorus. The magnesia precipitate was filtered out, washed with 2.5 per cent. ammonia, then dissolved in 150 c. c. of dilute nitric acid, and the phosphates determined as pyrophosphate. The results showed the following proportions:

Sample V, 0.315 per cent. P_2O_5 ; Sample VI, 0.300 per cent. P_2O_5 .

The figures thus show quite close agreement for the two methods of extraction. While showing considerably less phosphate than sample II (mouldy meal) analyzed by Forbes's method, they are still much greater than sample I (sound meal).

The other half of the original filtrate from each sample was precipitated with basic lead acetate. Both precipitate and filtrate were treated with hydrogen sulphide and the lead sulphide filtered out. The solutions resulting were evaporated to moist dryness on the steam bath. After standing for some time the residues were dissolved in water,

filtered, and used for trials on rabbits. The following were used:

- V. The material precipitable by lead acetate.
- V. The material not precipitable by lead acetate.
- VI. The material precipitable by lead acetate.

The preparations from sample V were each fed to two different rabbits. That from VI was injected subcutaneously into a rabbit. Each one represented twenty-five grammes of the original substance. No bad effects were apparent in any of the rabbits. It has been found, however, by Sturli and others, that rabbits are not as susceptible to mould poisons as other animals, e. g., mice, therefore it cannot be positively stated that these products are altogether nontoxic.

Waiving for the present the question of toxic organic substances in moulded meal, experiments were carried farther upon the increase in inorganic phosphates. Whether or not the fungus is a factor in the etiology of pellagra, there are deep seated biochemical changes wrought by the fungus infection. As the fungus grows it consumes much of the organic material in respiration. The extent to which this loss may occur is shown by the figures in Table I, which were collected during the progress of the work.

TABLE I.

Showing Loss of Weight in Corn Meal Infected with *Diplodia zeæ*.
Per cent.
of original
weight lost.

No.	Time.	
1. Sterilized corn meal control.....	56 days	4
2. Infected corn meal.....	56 days	29
3. Infected corn meal.....	92 days	47
4. Infected corn meal.....	200 days	55
5. Infected corn meal.....	200 days	60

From these figures it will be quite apparent that there was a great loss in the food value of the meal, due to the combustion of organic compounds by the fungus.

A more critical test of the amount of decomposition effected by the fungus was afforded by the determination of the amounts of inorganic phosphorus in the meal before and after the growth of the fungus. A series of analyses was made and is reported in Table II.

TABLE II.

Showing Samples, Methods of Analysis and Percentage of P_2O_5 in Samples of Corn Meal.

No.	Source.	Method of analysis.	Per cent. P_2O_5 .
A	Commercial air dry corn meal.....	Forbes	0.0192
B	<i>Diplodia</i> meal 4 months old.....	Forbes	0.9488
C	<i>Diplodia</i> meal 14 months old.....	0.3% HCl.	0.315
D	<i>Diplodia</i> meal 14 months old.....	Pepsin-pancreatin	0.300
E	Sterilized corn meal.....	Forbes	0.118
F	<i>Diplodia</i> meal 56 days old.....	Forbes	0.215
G	<i>Diplodia</i> meal 92 days old.....	Forbes	0.249
H	<i>Aspergillus</i> meal 92 days old.....	Forbes	0.255
I	Mouldy corn (top of cargo).....	Forbes	0.1224
J	Mouldy corn (20-50 cm. deep).....	Forbes	0.0474

Samples A and B should be considered together. The analysis of the former represents the phosphorus of a mill sample of corn meal; that of B represents the same after having been wet and sterilized and used as a culture medium four months.

Samples C and D were from another culture on corn meal. The principal object in making their analysis was to get a comparison of the amounts of phosphoric acid extracted by hydrochloric acid and by digestion with pepsin and pancreatin. As shown in the table the differences were not material.

Sample E showed much more inorganic phosphorus than A. This may be referred to two conditions; first, a different sample of corn meal was

⁵It gives me pleasure to acknowledge the assistance of Dr. W. B. Ellett in all this work, especially in the phosphorus determination.

used; and, second, the meal was moistened, sterilized in the autoclave, and kept for fifty-six days.

Samples F and G show an increased amount of inorganic phosphorus in comparison with E, which was from the same sample of meal and treated similarly, except for inoculation with *diplo*dia. The culture, ninety-two days old, had apparently liberated somewhat more inorganic phosphorus than the culture analyzed at the end of the fifty-sixth day.

Sample H was from a ninety-two day corn meal culture of *Aspergillus fumigatus*, obtained from the laboratory of Parke Davis and Company. The analysis shows that about the same amount of inorganic phosphorus was here liberated as in the case of the ninety-two day *diplo*dia culture. The comparison is not without interest since many observers have implicated *Aspergillus fumigatus* with the etiology of pellagra.

The analysis of samples I and J possesses peculiar interest because they are samples of mouldy commercial corn. They were obtained through the kindness of Dr. J. W. T. Duvel, of the Department of Agriculture. They were taken from a car of spoiled corn which had been about three weeks in transit (November 29th to December 22nd). When the car was opened the surface layers had a temperature of 62° C. and every grain was badly infected with a variety of mould fungi, among which species of *aspergillus* and *penicillium* could be recognized. Sample J, taken from twenty to fifty cm. below the surface, was subjected to anaerobic conditions and was not infected with the moulds which grew in the upper layers. The lower layers were, nevertheless, subjected to heating. The grains were dull mahogany in color and quite brittle.

Unfortunately there was no uninfected sample of maize to serve as a control, but an idea of the chemical changes wrought by the moulds may be gained by comparing the inorganic phosphorus content of the two samples. Sample J was clearly not infected with moulds, whatever organisms of an anaerobic character may have been present. In sample I the inorganic phosphorus content is between two and three times as great as in the less mouldy sample J.

It is entirely possible that the mould fungi might absorb the degradation products of organic phosphorus compounds and use them in their own metabolism, in which case these compounds would seem to disappear with further lapse of time. The analyses of samples B, C, and D would suggest such a condition. The cultures after fourteen months' growth contained about one third as much inorganic phosphorus as those which were four months old. It seems quite possible that the increased growth of the fungus and the process of forming spores would use a part, at least, of the inorganic phosphorus liberated by the fungus. The metabolism of the fungus would in that event convert the phosphorus into organic compounds characteristic for that particular fungus. In this connection it seems worth while to consider the possible formation of some specific organic phosphorus compounds and their pharmacological effect. Especially would this be important in regard to the formation of phosphorus compounds sensitive to light. It is well

known that the lesions and erythemata of pellagra appear almost entirely upon portions of the skin exposed to light. The assumption might logically be made that there is some substance in the body of the pellagrin which is sensitive to light, and, when acted upon, produces the local effects so characteristic of pellagra. This substance might be supposed to be derived from the action of the mould fungi upon maize.

From the foregoing data it would appear that *Diplo*dia *zea* and other fungi grown upon corn meal liberate material amounts of inorganic forms.

Corn meal infected with *diplo*dia loses in weight, the loss increasing with the age of the culture.

Aside from the question of the possible toxicity of any of the inorganic phosphates thus liberated or their possible rôle in the etiology of pellagra, the data show what is interpreted as a marked deterioration in the food value of the maize, due to the degradation of organic phosphorus and other compounds. As the fungi continue to grow they may take up a portion of the inorganic phosphates, possibly to form bodies having toxic properties.

Therapeutical Notes.

Treatment of Burns.—R. P. Stoops, in the *Therapeutic Gazette* for October, 1912, states that he has used the liquor cresolis compositus U. S. P. in over one hundred cases of burns, and believes its virtues should be more generally known. His procedure is as follows: The affected surface is first bathed with a one per cent. warm solution of the liquor cresolis in water until the débris have been removed and the parts are anesthetic. Blebs are next punctured and the serum expressed, and finally strips of gauze or, in the case of large burns, strips of paraffin paper, smeared with an abundance of petrolatum containing one per cent. of the liquor cresolis applied to the burned area. Cotton and bandage are used as a covering. The dressing is allowed to remain four or five days, after which it is renewed according to indications.

The preparation is advantageous in that it causes no pain at its first application; that it does not coagulate albumin exuding from the tissues or contained in the blebs, and that, although discoloration of the urine must be watched for, as with picric acid, poisoning is much less likely to occur than where a saturated solution of the acid referred to is used. In a case of almost universal burns in a child it was found possible to relieve all suffering by smearing the outside of the underclothing with the petrolatum mixture, and having the patient wear the garments turned inside out.

Treatment of Ophthalmia neonatorum.—Aaron Brav, in the *Therapeutic Gazette* for October, 1912, states that although it is well, if possible, to determine the condition of the cornea in an incipient case of ophthalmia neonatorum, the lids should never be forced open when there is marked swelling and blepharospasm, for very often harm will be done to the cornea. Cold compresses, an important feature of the treatment, will soon reduce the swelling and spasm, and the cornea can then be inspect-

ed. The compresses must be applied constantly day and night for the first three or four days, and must be changed every five minutes. They not only improve the condition, but also serve to draw the parent's attention to the gravity of the disease, and as a reminder for the application of other medicinal agents at regular intervals.

For cleaning purposes the author advises the use of a one to 10,000 mercury bichloride solution, with which the conjunctival sac is to be irrigated every half hour for the first two days. The essential point is, not the antiseptic value of the drug, but the thoroughness with which the discharge is removed. The solution is best applied from an eye dropper; the fountain syringe, sometimes employed, is unnecessary, and diverts too much of the attention to its own control rather than to the cleansing process.

A solution of an organic silver salt may be given to the family to instil immediately after washing the eye. The germicide *par excellence* is silver nitrate, which should, however, be applied by the physician himself, once daily, in one per cent. strength. The solution should not be instilled into the conjunctival sac, but carefully applied with an applicator, such as a toothpick wrapped with absorbent cotton. The conjunctiva is gently everted and just smeared with the solution, care being taken to avoid the cornea.

The author continues this treatment for a week, then discontinues the bichloride solution and substitutes a solution of zinc sulphate, one grain to the ounce, with which the conjunctival sac is irrigated every hour or two. This is done because very often there is a mixed infection, which readily yields to the zinc. This is used for one week, during which time the silver applications and instillations are continued. The eye is then usually quiet, and a saturated boric acid solution is ordered, to irrigate the eyes three or four times daily for about two weeks. It is important not to stop treatment too early, lest an exacerbation with corneal involvement and loss of an eye subsequently occur.

When corneal involvement is suspected the cold compresses must be replaced by warm, moist ones. When ulceration occurs it is best to use a simple, nonirritating, warm eye lotion. The application of silver nitrate should, however, be continued. Atropine should be instilled three times daily, and if there is ulceration, iodoform powder dusted upon the area affected. Operative procedure is contraindicated in these cases. It is best that all these cases of corneal involvement, even where the latter is only suspected, should be turned over to the specialist.

Treatment of Pernicious Vomiting in Convalescence from Typhoid Fever.—A. Khoury, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, October 24, 1912, reports the case of a girl of eighteen years who had suffered from typhoid fever for over ten weeks. Early in the period of convalescence there appeared vomiting, which remained uninfluenced by a large variety of drugs, diet, and saline injections. Gavage gave relief for only twenty-four hours. Remembering the persistent vomiting that occurs in adrenal in-

sufficiency, as well as the initial vomiting and evidences of myocarditis and low arterial tension that had featured in the case under treatment, the author decided to administer epinephrine. Forty drops of the one to 1,000 solution daily by mouth proved useless, but when one milligramme of epinephrine was injected daily in two doses, the vomiting spells soon became less frequent, and in forty-eight hours had entirely ceased. The injections were continued for three days more. The author advises that this measure be tried in all cases similar to that reported.

Treatment of Diabetes mellitus.—Kolipinski, in the *Monthly Cyclopaedia and Medical Bulletin* for August, 1912, states that in the general treatment of diabetes he uses no medicinal agent except the following saline purgative, which he administers when the patient is constipated, has hemorrhoids, or is obese, or where it is desired to reduce the body weight.

℞ Sodium phosphate, { of each ʒiv (120 grammes).
Sodium sulphate, . }

Dissolve by shaking in a quart (1 litre) bottleful of cold water.

This solution is a saturated one, and a small amount of the salts remains undissolved. The dose is a wineglassful in a tumblerful of cold water, fifteen or twenty minutes before breakfast or supper. This combination acts in thirty to forty-five minutes, with great certainty, and it has no depressant action like that of magnesium sulphate or the waters containing it. The salts may be taken once or twice a day or two or three times a week, according to indications, and for an indefinite period.

Another useful formula is:

℞ Sodium chloride, ...ʒiii (12 grammes);
Sodium bicarbonate, ...ʒiv (16 grammes);
Sodium sulphate, ...ʒiiiss (112 grammes);
Sodium phosphate, ...ʒiv (128 grammes).

Dissolve by shaking in a quart (1 litre) bottleful of cold water.

This combination is taken in the same manner as to quantity and time as the first. Its action is somewhat milder, its taste is more pleasant, and it is slightly antacid.

Treatment of Lichen urticatus.—H. G. Adamson, in the *Clinical Journal* for September 18, 1912, states that while this affection is supposed to be due to gastrointestinal disturbance, the eruption will often persist even after the child has been carefully dieted. Nevertheless, there is no doubt that disturbances of the digestion make the eruption worse, and one should always insist upon proper feeding, suited to the age of the child, and upon the avoidance of raw fruits, sweets, etc. Hydrargyrum cum creta, one half grain, may be given every evening, and sodium carbonate or a bismuth mixture the next day. Antipruritic lotions may also be prescribed. A useful one is the following:

℞ Liquoris picis alkalini (N. F.) { āā ʒss (2 grammes);
Liquoris plumbi subacetatis, }
Glycerini, ...ʒi (4 grammes);
Aqua, q. s. ad.....ʒviii (240 grammes).
M. ft. lotio.

The child should be lightly clad at night, and the bath should be given in the morning rather than at bedtime.

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NEW YORK, SATURDAY, MARCH 22, 1913.

**THE GERM OF ACUTE POLIOMYELITIS
OR INFANTILE PARALYSIS.**

Dr. Simon Flexner's reported discovery of the germ of infantile paralysis, or better, acute poliomyelitis, since the disease occurs also in adults, will fittingly crown a series of painstaking researches if it stands the crucial test of time. A virus has been known to be present in various tissues, notably the cerebrospinal system, the nasopharyngeal mucous membrane, the tonsils, and the mesenteric and salivary glands, which, as is the case with that of rabies, passes readily through the Berkefeld, Chamberland, and Reichel filters. Yet Landsteiner and Levaditi noted that, after its passage through the latter, the virus lost some of its virulence, the incubation period in monkeys was prolonged, and the animals recovered with relative frequency. This left the question open as to whether the pathogenic agent which penetrated the filter was an organism or its toxine. Flexner and Lewis found some evidence that the specific organism, though unidentified, multiplied in mixtures of broth and monkey serum. Levaditi, and subsequently Roemer, had observed a small oval or round corpuscle which was stainable by Loeffler's method. Dixon, Fox, and Rucker also found in cases of acute poliomyelitis an organism which differed morphologically from any previously described. The anaerobic organism

now identified by Flexner, owing to its minuteness and other attributes, meets satisfactorily various peculiarities shown by the virus, including its filterability.

Of practical interest in this connection is the fact that although the virus has been found in many structures other than the nervous system, the only region in which it occurs with any degree of constancy is the nasopharyngeal mucosa. When we recall that it is killed by comparatively weak disinfectants, such as a one to five hundred solution of potassium permanganate, a one per cent. solution of menthol in oil, a one per cent. solution of hydrogen peroxide, etc., prophylactic measures through local treatment offer some promise. Again, the fact that hexamethylenamine is excreted into the cerebrospinal fluid, even when administered by the mouth, has afforded hope of results through internal medication. If to this we add the likelihood that a serum will probably follow the identification of the germ, we may entertain reasonable hope that before very long another of humanity's foes will have been controlled.

CIVIC SPRING CLEANING.

Health Commissioner Lederle of New York has recommended a spring housecleaning on a scale never before attempted "and with little expenditure of public funds." According to his plan the other metropolitan departments and bureaus would cooperate with the health department as would also all civic organizations, especially those in which women are active, and the public in general.

Here is an excellent plan which should extend to all our communities, rural as well as urban, the hamlet as well as the gigantic municipality. We offer here a few further suggestions: Before April let closets, bureaus, nooks, and crannies everywhere in the household, be thoroughly renovated, in order to insure detection of hibernating flies; in April the overwintering mother is likely to start the summer season's transmission of the tubercle bacillus, the typhoid bacillus, etc., with an initial laying of a hundred or more eggs. We aim now not so much to swat the fly as to starve him, to remove the filth in which he breeds and gets his being. The public press gives its columns generously to such ends. Newspapers indeed are invaluable in their influence; how much better were it if they would give more space to disease prophylaxis and less to the pitiless exploitation of a consumption serum the efficacy of which is absolutely problematical, and of cancer "cures" which cannot cure cancer.

During the winter months, in most communities, all kinds of refuse accumulates to an unusual ex-

tent; therefore, at snow melting time, the civic housecleaning should be most industriously entered upon. The manure heap is the lying-in chamber of from ninety to ninety-five per cent. of fly mothers; it should receive especial attention. But barns, chicken yards, closets, privies, hog pens, must be cleaned up and kept ever clean. In the household all food must be covered and screened; only from the best kept households is the fly absent. And alleys and the immediate environs of houses must be kept clean. Screens (eighteen meshes to the inch, to keep out mosquitoes as well as flies) are essential for all windows, and for dining room and kitchen doors. Garbage cans, rubbish heaps, bedding, straw, waste paper, rags, vegetable matter, and all refuse tending to fermentation must be attended to.

Obviously and above all must the fly be kept out of the sick room, especially where there are sufferers from contagious diseases. Flies must be kept from the vomit and excreta of typhoid patients, which must be destroyed or disinfected according to well known rules, and from abscesses and discharging wounds in surgical cases. All hospitals, dispensaries, and sanatoria must be flyproof. As for mosquito extermination, no spot which may contain a teaspoonful of still water can safely be overlooked.

A burning interest in municipal sanitation must be kindled in the breasts of grocers, bakers, fruiterers, butchers, fish dealers, especially those who expose food for sale on the street, hotel and restaurant proprietors, factory owners, and perhaps most of all milkmen who keep horses. Horse manure must be promptly removed from the streets, also dead animals; and streets must be constantly washed and kept clean.

One uncleanly householder may keep a whole district flyridden and perhaps pestilent, no matter how well all others have done their duty; wherefore, especially in villages, the problem becomes a neighborhood problem; and the neighbors of that untidy delinquent have to be disagreeable to him until he sees the error of his ways and acts accordingly. Any nuisance in the neighborhood should be at once reported to the authorities, who should (if the occasion warrant) be made uncomfortable until they act; maintaining a nuisance has been held to be a misdemeanor, to be punished as such.

The time is now ripe for education in municipal house cleaning. The genial lecturer on hygiene and sanitation, armed with his box of lantern slides, his harmless little jokes interspersing his gory facts, should be abroad in the land. Travelling prophylaxis exhibits are provided by some State departments. Placards announcing the communal house cleaning should decorate store windows, should replace those of beauty shows in our country towns.

Women's clubs and leagues and farmers' and teachers' institutes should busy themselves with the problem. Let sermons be preached on the cleanliness which often leads straight to godliness.

THE PART PLAYED BY VASCULAR ANOMALIES IN THE PRODUCTION OF HYDRONEPHROSIS.

Compression of the ureter by a bloodvessel is quite as important in the production of an hydronephrosis as that resulting from a fibrous band. The vascular anomaly, considered as a causative factor of hydronephrosis, acts by external compression in the same manner as the viscera in normal relationship to the renal gland. Usually, it is a branch of an abnormal renal artery, occasionally a vein, which passes in front of or behind the ureter and compresses it. More frequently the vessel produces a sharp bend in the ureter, and for this to take place the artery must have both an abnormal position and course.

When the kidney is irrigated by vessels following the classical and anatomical relationship to the ureter, it would be well nigh impossible for the latter to be compressed by a vessel, even in marked displacement of the renal gland, but an abnormal position of the vessel can exercise its effects of ureteral compression from the very beginning of life, so that an hydronephrosis results which, from the start, will take on the characters of either an intermittent or open hydronephrosis. The abnormal artery compresses the ureter at each systole, producing a mild irritative process at the point at which the vessel crosses the tube, and this will be followed sooner or later by an inflammatory process—a ureteritis or periureteritis, the consequences of which will be the transformation of an open hydronephrosis into a closed one. When this occurs marked renal disturbances arise.

The vascular anomaly is not always the primary causal factor of the hydronephrosis; in some instances it only intervenes by keeping up an already developed process. The particular abnormal arrangement of a vessel may cause the bend in the ureter to be permanent, just as in the case of a periureteral adhesion, and may result in an accidental or spontaneous displacement of the kidney. This fixity is the factor in play in the production of hydronephrosis in movable kidney.

It has been said that the part played by the bloodvessels in hydronephrosis is always secondary, always passive. It is undoubtedly true that their compressive action arises only when the renal pelvis has acquired some size, transforming an open hydronephrosis into a closed one, but it is not to be doubted either that the production of hydrone-

phrosis can be attributed to an existing vascular anomaly, when no other etiological factor can be discovered.

The persistence of Müller's and Wolff's ducts is infrequent, but in a few instances of hydronephrosis they appear to have played a preponderant part in the mechanism of the production of the lesion. The ureter has been discovered bound around by a fibrous band, which undoubtedly was the vestige of the Wolffian duct, and by its persistence resulted in urinary retention in the renal pelvis.

DAMAGED GOODS.

It has been generally recognized that the audience before which *Damaged Goods* was produced at the Fulton Theatre on March 14th was precisely the kind of audience least in need of the lesson which the play teaches—that syphilitics should not marry until the Wassermann reaction is most certainly negative. In spite of its sensational language and one powerful climax, we doubt if the play would appeal to the general public. To compare it, as Mr. Wilton Lackaye did, to *Uncle Tom's Cabin*, was inapt, as the latter has every element of a popular drama. With the exception of the climax of the second act, already referred to, M. Brioux's production is more a tract than a play, but in this scene the writer chose for a moment to show his ability as a playwright and, after two acts of preaching, it exploded before the astonished audience like a bomb. What follows in the third act is in the nature of an epilogue. Probably *Damaged Goods* will always have to find special audiences and many of these may be surprised to find that it is in no sense a crusade against sexual immorality, but simply against syphilis; in fact, the play seems, above all, to be intended as an appeal to syphilitics to be careful, and, secondarily perhaps, as a plea for legislation to forbid men from marrying till they can present a clean bill of health. If it accomplishes so much it will not have been produced in vain, and the members of the Medical Review of Reviews Sociological Fund will deserve the thanks of the community.

PELLAGRA.

In the *Public Health Reports* for March 14th was published the conclusion of a very interesting article by Dr. R. M. Grimm which began in the issue for February 28th. The author was able to see a number of pellagrins and study the development of the disease. There were three communities upon which his report is based, one in Kentucky, one in South Carolina, and one in Georgia. Beside the relationship between food and pellagra which seems to be a real one, the possibility of some insect playing a part in the dissemination of

the disease should not be overlooked. As to the question of food there are three ways which have to be considered: The character of the food may act only in predisposing to conditions which will favor the development of the disease, or certain articles of food may act as the real exciting agent, or the food acts only as an exaggerator of the symptoms. Again, certain articles of food may act in all three ways. The article gives a number of very instructive illustrations; those accompanied with maps especially deserve a good deal of credit.

We see that more cases are found among the whites than among the negroes, and the females of each race show a larger percentage than the males; while among the married and widowed pellagrins the females predominate. The single pellagrins were equally divided among the sexes. As to age we see that most cases develop between the twentieth and fortieth year. The rate of insanity was higher among the negroes than among the whites, and higher among males than among females, while the mortality was highest among colored females and lowest among white females, the negroes giving a higher percentage than the whites. As to environment more cases occurred under conditions of poverty than of comfort. Very important is the final conclusion: Pellagra is more prevalent than is ordinarily supposed, even by physicians practising in pellagrous communities, and there are many persons with symptoms of a mild condition who do not ordinarily come to the attention of the physician.

SPOONFULS OF MEDICINE.

An editorial note in the *Lancet* for March 1, 1913, draws attention to the fact that the teaspoon does not always contain exactly sixty minims, has varied in capacity, in fact, from sixty to 120 minims, and it comments with approval on the action of an Australian medical society which has recommended the various pharmaceutical organizations to request pharmacists to write the doses of medicines dispensed by them in ounces and drachms instead of spoonfuls, and to advise their patrons to secure properly graduated medicine glasses. The *Lancet* has before pointed out that in these days of standardized preparations teaspoons and tablespoons are obvious anachronisms.

WORK WITH SPENGLER'S BODIES.

Presse médicale for March 5, 1913, summarizes a report from *Scalpel et Liège médical* for February 23d of a paper read before the Clinique centrale de Liège by Daco, in which he gave his results from injection of Spengler's *Immun-Körper* in four cases of tuberculosis. These comprised a case of bilateral pulmonary infection in a woman, thirty-five years old, in whom treatment for four months was absolutely negative as to results; a case of double phthisis in a man of forty years, in whom three months' treatment was considered to have improved the general condition, but in whom developed an albuminuria which was attributed to the treatment; a case of sacral osteitis, in a woman of fifty years, in whom this condition was soon suc-

ceeded by renal then pulmonary involvement which carried off the patient; and, finally, a case of renal tuberculosis in a man, aged thirty-seven years, who has been treated since July 18th and who is reported to be on the way to a cure.

RADIUMLIKE ACTION OF MESOTHORIUM.

A letter from Vienna, in *Semaine médicale* for March 5, 1913, mentions a report made to a local society by M. L. Freund on the action of mesothorium in lupus. The patient was a young girl, and the experimenter placed a tube containing sixteen milligrammes of mesothorium on one part of the lesion and a second tube containing an equal quantity of radium on another part; the effects were exactly parallel. Adrenal extract was found to augment the action of mesothorium by its property of producing anemia. The rays were modified by the interposition of a screen of silver or aluminium.

Obituary.

PRINCE A. MORROW, M. D., of New York.

Doctor Morrow died on March 17th at his home, 66 West Forty-fourth street, New York, aged sixty-six years. He was born in Mount Vernon, Ky., in 1846, obtained his early education at Cumberland College and Princeton College (Ky.), and graduated in medicine at New York University Medical College in 1873. In 1880 he received the degree of A. M. from the same university. After study in Europe, he began practice in New York and became clinical lecturer in dermatology and subsequently professor of genitourinary diseases at his alma mater; he was visiting surgeon to the Charity Hospital, consulting surgeon to Bellevue Hospital, outdoor department, and attending physician to St. Vincent's Hospital. In 1888 he began a special study of leprosy, traveling through the Southern States, the Hawaiian islands, Mexico, and California. He was for ten years editor of the *Journal of Cutaneous and Genitourinary Diseases*. Of late years he had given much of his time to the American Society for Sanitary and Moral Prophylaxis, of which he was president, and he contributed numerous articles on these subjects to the *NEW YORK MEDICAL JOURNAL* and other scientific publications. For many years he was a valued editorial contributor to this *JOURNAL*, and was greatly esteemed by members of the staff. Doctor Morrow is survived by a widow, two sons, and a daughter.

News Items.

Changes of Address.—Dr. S. R. Klein to 818 East 216th Street, New York.

Northern Medical Society.—A meeting of this society will be held on Wednesday evening, March 26th, at 8:45 o'clock, at 12 Mount Morris Park West, and a cordial invitation is extended to all members of the medical profession to attend. Dr. Herman Grad will present reports of some interesting gynecological cases, and Dr. S. A. Tannenbaum will read a paper on the Relation between Sexual Abstinence and Nervous Disorders.

A Pasteur Institute in St. Louis.—It is reported that a Pasteur Institute will be established in St. Louis, under the direction of Dr. R. B. H. Gradwohl. At present cases of rabies are treated at the City Hospital, but the laws permit only residents of the city to receive treatment there, patients outside of the city having to go to Chicago for treatment. The new institution will be conducted along the lines of the New York Pasteur Institute.

Chicago College of Physicians and Surgeons Presented to Illinois State University.—On Thursday, March 6th, the College of Physicians and Surgeons was presented to the University of Illinois, becoming the medical department of that institution, and the trustees have asked the legislature for an appropriation of \$100,000 a year for the support of the department. The State institution absorbed the entire college, its faculty, students, building, and equipment.

An Epidemic of Influenza in Vienna.—According to press despatches, the Austrian capital is suffering from an epidemic of influenza, statistics of the health department showing that half a million cases have been reported during the past three months. Physicians, hospitals, and nurses are being overtaxed, as whole families seem to be attacked simultaneously. The disease is of a particularly virulent type, with serious aftereffects. It is believed that milder weather will stop the spread of the epidemic.

Meetings of Medical Societies to be Held in Philadelphia During the Coming Week.—Monday, College of Physicians (Section in General Medicine), and St. Agnes Hospital Clinical Society; Tuesday, West Philadelphia Medical Association, and St. Mary's Hospital Clinical Society; Wednesday, County Medical Society; Thursday, Pathological Society; Friday, Neurological Society, County Society (South Branch), Northern Medical Association, and Medical Club Directors.

Neurological Department of Mount Sinai Hospital.—Announcement is made of a gift of \$120,000 from Messrs. Samuel and Harry Sachs, for the support of free beds in the neurological department of Mount Sinai Hospital, in memory of Joseph and Sophie Sachs. A new ward has been opened in this department for children suffering from nervous diseases, and the men's and women's wards have been enlarged. One of the new buildings which the hospital is about to erect will be designed with special reference to the requirements of a thoroughly equipped neurological institute.

A Symposium on Nephritis.—The next meeting of the Section in General Medicine of the College of Physicians of Philadelphia, to be held on Monday, March 24th, will be devoted to a consideration of modern views of nephritis. Dr. R. M. Pearce will discuss the Newer Concepts of Nephritis; Dr. A. E. Taylor, Uremia; Dr. Alfred Stengel, the Cause of Edema in Nephritis; Dr. Hobart Amory Hare, the Treatment of Renal Dropsy; Dr. James Tyson and Dr. Alfred C. Wood will discuss the Operative Treatment of Nephritis, and a general discussion will follow. All physicians who are interested in the subject are invited to attend.

Clinical Lectures and Demonstrations at the Skin and Cancer Hospital.—The governors of the New York Skin and Cancer Hospital, Second Avenue and Nineteenth Street, announce that a course of clinical lectures and demonstrations will be given in the outpatient hall of the hospital on Wednesday afternoons, at 4:15 o'clock, from April 2d to May 14th, inclusive. The first six lectures will be given by Dr. L. Duncan Bulkley on Surgical Diseases of the Skin, and the last lecture in the course will be given by Dr. William Seaman Bainbridge on Surgical Treatment of Malignant Diseases. These lectures are free to the medical profession, on the presentation of professional cards.

Rochester, N. Y., Academy of Medicine.—The officers of this organization to serve for the year 1913 are as follows: President, Dr. Charles E. Darrow; vice-presidents, Dr. Lee A. Whitney, Dr. Leighton R. Cornman, Dr. LeGrand A. Walker and Dr. Clayton K. Haskell; secretary, Dr. Edward L. Hanes; treasurer, Dr. Wesley T. Mulligan. The work of the academy is divided into four sections as follows: Section I, General Medicine, Dr. Lee A. Whitney, chairman, Dr. Willard H. Veeder, secretary; Section II, Surgery, Dr. L. A. Walker, chairman, and Dr. G. G. Carroll, secretary; Section III, Obstetrics, Dr. L. R. Cornman, chairman, and Dr. James K. Quigley, secretary; Section IV, Public Health, Dr. C. K. Haskell, chairman, and Dr. John M. Swan, secretary.

Plague in the Philippine Islands.—The chief quarantine officer and director of health for the Philippine Islands reported on January 8th that the total number of cases of plague reported in the islands from the beginning of the outbreak in June, 1912, to December 25, 1912, was 58. Of these cases 50 occurred in Manila and 8 in Iloilo, the last case in Iloilo being reported on September 16th and at Manila on December 25th, since which time no case of plague has been reported in the Philippine Islands.

Smallpox in Mexico.—The following statement regarding smallpox conditions on the west coast of Mexico was received recently by the United States Public Health Service: Smallpox is present in almost every town on the west coast of Mexico, but in only a few districts has the disease assumed a serious epidemic form and in these districts measures have been taken to prevent its spread. Foci of smallpox are reported in thirty-seven localities, in most of which the disease being present in isolated cases. The localities in which serious conditions exist are the Yaqui Valley, which is badly infected, the mortality being greatest on isolated plantations, where the deaths number hundreds, and the Navjoa district, where the disease has been endemic for two years. A recent outbreak occurred in the vicinity of Tepic with fifty reported cases and a high fatality rate.

Resolutions on the Death of Dr. Kingman B. Page.—At a recent meeting of the medical board and the board of directors of the People's Hospital, the following resolutions were adopted:

WHEREAS, Death has suddenly ceased the activities and affiliations in life of our late colleague, Kingman B. Page, M. D., be it

Resolved, That in his untimely decease the medical board and board of directors and allied organizations of the People's Hospital in the City of New York have sustained a lasting personal and professional loss, and be it

Resolved, That in his demise we feel the absence of one whose professional enthusiasm was a real inspiration, whose loyalty to the People's Hospital was a treasured example, whose devotion to the science and art of medicine was an elevating impulse and whose self sacrifice in the service of fellowman was a humanitarian principle, and be it

Resolved, That a copy of these resolutions be spread upon the permanent records of the medical board of the People's Hospital in the City of New York, and that an engrossed rescript of them be forwarded to the bereaved family in token of sympathy and fellowship in sorrow and affliction.

Committee on Resolutions.

VICTOR COX PEDERSEN, chairman;
WALTER BROOKS BROUNER,
DANIEL S. DOUGHERTY,
JOSEPH KAUFMAN,
MAX LANDESMAN,
SOLOMON ROTTENBERG,
SIMON STRAUSS,

Executive Committee.

IGNATZ M. ROTTENBERG, president;
ANTHONY BASSLER, secretary.
JOSEPH BIEBER,
JULIUS BRODER,
J. PRESCOTT GRANT,
MAXIMILLIAN LEWSON,
SAMUEL SPIEGEL.

Resolutions on the Death of Dr. Archibald E. Isaacs.—The Eastern Medical Society of the City of New York has passed the following resolutions on the death of Dr. Archibald E. Isaacs:

WHEREAS, We have learned with deep sorrow of the death of our beloved member and former president, Dr. Archibald E. Isaacs, whose kind disposition and sterling qualities, and whose ability, earnestness, and devotion to duty have gained for him the regard, esteem, and affection of the members of the Eastern Medical Society, and

WHEREAS, Dr. Archibald E. Isaacs was one of the founders and former president of the society and as one of its active members, he has at all times given freely of his counsel, time, and efforts to promote the interests and welfare of the Eastern Medical Society, and

WHEREAS, His professional ability and skill and his self-sacrificing service in behalf of the poor have earned for him a position of honor and distinction in the medical profession and have gained for him the love and esteem of the laity; be it

Resolved, That the society record the sentiment of its members that by the untimely death of Dr. Archibald E. Isaacs, a worthy, distinguished, and inspiring career has been cut short, the cause of humanity has lost an ardent champion, the medical profession an exemplary member, and the Eastern Medical Society an enthusiastic and earnest worker, and be it

Resolved, That the society extend its sincere condolence to the sorrowing family in their loss of a loving son and husband and devoted father, and be it further

Resolved, That a copy of these resolutions be spread on the minutes of the society and that a copy be sent to the bereaved family and the medical press.

Committee:

DR. L. J. LADINSKI, DR. D. ROBINSON,
DR. A. A. HIMOWICH, DR. J. BARSKY, ex officio.

A special meeting of the Medical Board of the Beth Israel Hospital called for the purpose of taking action on the death of Dr. Archibald E. Isaacs, was held at the hospital, on March 14, 1913, at 2 o'clock. Resolutions of similar import to the foregoing were unanimously adopted, and signed by Dr. J. Ladinski, acting secretary, and Dr. J. E. Reinthal, president. The board also resolved to attend the funeral in a body.

A State Hospital for Tuberculosis in Rhode Island.—

The State of Rhode Island has appropriated \$150,000 to provide for the erection of a tuberculosis hospital, and work on the building will be started as soon as plans can be prepared. It is said that there are hundreds of patients in the State waiting for admission to such an institution, and at the present time there are in Rhode Island 2,000 advanced cases of tuberculosis, with a total of 300 beds to accommodate them. The new building will provide accommodation for about half the total number of patients during the next year, but no provision has been made for a possible increase in the number of cases. During the year 1912 there were 1,000 deaths from tuberculosis in the State. Newport has a special fund for the care of advanced cases at home and for the care of a few at the Holy Ghost Hospital for Incurables in Cambridge, Mass.

Opening of the Phipps Institute.—The new building of the Henry Phipps Institute of the University of Pennsylvania, at Seventh and Lombard Streets, Philadelphia, will soon be ready for occupancy. It is expected that the formal opening will be held within the next month, but as yet no definite date has been set. The object of the institution is the study, prevention, and treatment of tuberculosis, and, roughly speaking, the three sections are to a greater or less degree distinct from each other. The laboratories, where research work along modern lines will be conducted under the direction of Dr. Paul A. Lewis, occupy the wing toward the east; the "treatment" or hospital department occupies the third, fourth, and fifth floors, while the main parts of the first floor and basement are devoted to the dispensary, lecture hall, library, and museum, that is, to the educational and sociological aspects of the work. The second floor and a part of the third are devoted to quarters for the staff. The main building is three stories in height, the fourth being set back on two sides, and the fifth set back still further at each end. This terracing or setting back of each succeeding story is for the purpose of forming uncovered decks for the open air treatment of patients. On the fifth floor is a large open air ward, open to day classes of both sexes. The equipment and apparatus are thoroughly modern and complete in every respect, and excellent safeguards against fire have been provided. Taken as a whole, the new building is very businesslike. Nothing essential has been sacrificed for economy and nothing superfluous has been added for effect. Dr. Charles A. Hatfield is the director of the institute.

Examination for Assistant Surgeons in the United States Public Health Service.—A board of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S. E., Washington, D. C., on Monday, April 7, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service as internes in hospital for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work. In addition to a physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeons general \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade is allowed. All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address: Surgeon General, Public Health Service, Washington, D. C.

Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

January 6, 1913.

Formation of Circumscribed Tumors by Abdominal Fat Necrosis and Subcutaneous Splitting up of Fats.—H. Küttner reports two cases which began with the usual drastic symptoms of abdominal fat necroses, but instead of leading to the usual pathological changes, produced solid circumscribed tumors, in the first case simulating a tumor of the gallbladder, and in the second a chronic inflammatory or malignant tumor of the intestine. His third case presented a circumscribed tumor of the mamma, caused by the splitting up of fats.

Therapy in So Called Uncontrollable Hemorrhage of Infants.—K. Blühdorn was able promptly to control hemorrhage in three little patients suffering with melena neonatorum, abdominal purpura, and hemorrhage from the navel in sepsis with pernicious icterus, by the injection of diphtheritic serum and the internal administration of calcium chloride. The author makes a plea for thorough tests of this method and wants reports of the results.

January 13, 1913.

Paralysis Following Extension Treatment of Fractures of the Femur.—M. Weichert noticed a series of paralyses of the peroneal and lateral cutaneous nerves following the extension treatment of fractures of the femur. These are caused by the excessive stretching of the sciatic root, due to the heavy weights and the extension and elevation with light weights. Since employing the principle of Zuppinger's semiflexion method he has noticed no paralyses.

Ehrmann's Frog's Eye Phenomenon in the Blood Serum in Psoriasis.—A. Sommer observed the following interesting fact: When the irides of frog's eyes are placed in the serum of healthy human beings the pupils soon dilate, but when immersed in the serum of those suffering with psoriasis they remain contracted. The author believes this to be due to the lack of an epinephrinelike substance in the blood serum of those afflicted with psoriasis which prevents the dilatation of the pupil.

Synthetic Hydrastinin and Its Application.—H. Offergeld has tried synthetic hydrastinin in uncomplicated primary and secondary uterine hemorrhage and found it very satisfactory. Its action is particularly excellent when given prophylactically for some time before hemorrhage begins, and in cases with virgin uteri. Hemorrhage during pregnancy is not to be treated by this drug because of the uterine contractions that it produces. It is less poisonous, more effective, and palatable than hydrastis and much cheaper.

Tabetic Coma.—R. Ehrmann shows by a series of experiments and observations that diabetic coma is a specific butyric acid poisoning. Such acids act as cerebral poisons upon respiratory vasomotor and cerebral centres. When the action of the butyric acid is concentrated upon the vascular system a cardiovascular form of coma results. The action of sodium carbonate and sodium bicarbonate in coma

is due to a more rapid and more thorough washing out of the butyric acid, also to the stimulating action of the vasomotor system.

January 20, 1913.

Lipoid Chemistry of the Blood.—Bürger and Beumer describe an original detailed method of determining the distribution of cholesterol and cholestrinesters and lecithin in blood serum. They found that in every serum there is a varying but considerable part of the total cholesterol in the free form; the least is thirty per cent. of the whole total cholesterol. The highest amount of cholesterol and lecithin are found in diabetic liphemia and cholemia. The amounts were below normal in pernicious anemia, severe chlorosis, and inanition. Röhman and Pighini's supposition that the free cholesterol of the serum bears a causal relation to the Wassermann reaction has not been substantiated.

Nystagmus in Fevers.—Czyhlarz found, as Beck and Biach also had found, that the majority of patients with high fever show distinct signs of nystagmus. In typhoid, nystagmus appears usually after the second week and has a tendency to remain after the subsidence of the fever. In the fever of tuberculosis nystagmus is rare, but it does appear in scattered cases of even the nonmiliary type.

Surgery of Cavities.—G. Baer suggests that in cases of cavities an extrapleuritic pneumolysis with secondary plastic filling in of the cavities by paraffin be tried. Even a partial cleaning out is sufficient to influence the cavity favorably. The results may be enhanced by opening the cavity a second time, as is shown in the case reported. The fact that the bony thorax remains intact gives this method an advantage over Wilm's operation or Friederich's thorocoplasty.

January 27, 1913.

Clinical Experiences with Adamon in Irritations of Acute Gonorrhea.—Treitel recommends adamon for diminishing the painful symptoms in acute gonorrhea. It is given in tablet form, two tablets dissolved in water of 0.5 gramme each between 5 and 6 p. m., and two more an hour before retiring.

WIENER KLINISCHE WOCHENSCHRIFT.

January 2, 1913.

Parasitic Action of Atoxyl and Neosalvarsan.—L. Arzt and W. Kerl show that by adding lecithin to atoxyl the parasitic action of the latter is increased, while the parasitic action of neosalvarsan is decreased by the addition of lecithin. One hour after the intraperitoneal injection of atoxyl or neosalvarsan trypanozoid substances may be found in the blood. In the experiments the neosalvarsan has a stronger parasitic action than the atoxyl.

Enchondroma of the Helix.—Zografides reports the case of a girl, twelve years old, who complained of pain in both ear lobes a year ago. They became swollen and abscesses formed. After the pus was drained off, a swelling remained on both sides which gradually changed into a circumscribed tumor resembling cartilage. The histological examination of a section of the extirpated tumors showed the picture of an enchondroma consisting of elastic cartilage.

Hexxal.—Kowanitz found the action of this drug, composed of formaldehyde and salicylate,

excellent in all forms of cystitis. It is said to possess three advantages over urotropin—it is more rapid in its action, it has greater analgesic properties, and it is pleasant to take.

January 9, 1913.

Benzol Treatment in Leuchemia and Other Blood Diseases.—Pappenheim says that according to the animal experiments of Selling, the doses of benzol which have been given up to the present time are too small to exert a retarding influence on the formation of bone marrow cells. In larger doses there is danger of injury to liver and kidneys. Benzol is less effective for the treatment of leuchemia than the emanating substances; the action is less intensive, less elective, and less constant than is the case with the radioactive substances. The gastrointestinal effects of the benzol should not be treated too lightly, as they are probably due to injury to the mucous membranes.

Cutaneous Reaction of Syphilis.—Fischer and Klausner have found a substitute for Noguchi's luetin, which is obtained with difficulty. The watery spirochete extract is made from the lungs of children suffering with hereditary syphilis, which is used for the cutaneous reaction according to the method of Noguchi. Syphilitics in the first and second stages do not give the cutaneous reaction. On the other hand, all cases in the third stage and those with hereditary syphilis react without exception. There were negative reactions for metasymphilitic and other diseases. This reaction will probably become pathognomonic for the third stage of syphilis.

Prognosis in Infantile Tuberculosis.—Lawatschek believes that for the prognosis in infantile tuberculosis, beside localization of the tuberculous foci and the age at which infection takes place, we must consider the severity of the initial infection and the probability of recurrences. In this manner infants who have become infected after birth and whose infections are repeated may succumb more readily than those who have been infected congenitally or *intra partum* with only a few bacilli, and then protected from reinfection. The earliest positive cutaneous reaction was obtained in an infant, twenty-eight days old, and one of thirty-eight days.

January 16, 1913.

Dorsal Auscultation of the Heart and Blood-vessels.—L. Kurt demonstrates that under normal conditions the heart sounds may almost always be heard in children dorsally, but seldom so in adults. They are more distinctly heard to the left of the vertebral column than to the right. The accent is usually on the second sound. Then follows a detailed description of the accurate localization of the dorsally heard heart sounds and murmurs.

Intramuscular Injections of Defibrinated Human Blood Serum for the Treatment of Anemia.—Zubrzycki and Wolfsgruber injected from twenty to thirty c. c. of fresh defibrinated human blood serum into the gluteal region of exsanguinated patients for the purpose of stimulating the formation of blood. Excellent results were obtained in all the cases. The blood picture changed favorably. The improvement in the general condition kept pace with the improvement in the blood picture. When strict asepsis is observed the blood injections are not unpleasant or dangerous.

January 23, 1913.

Physiology and Pathology of Digestion and Resorption in the Light of Modern Serological Teachings.—Buettner suspects the imperviousness (dependent upon the vitality itself) of the epithelium of the small intestine for complex protein molecules (peptones) and for dissolving native protein. The liver furnishes the second protective agency. When both these barriers are destroyed the foreign protein finds its way into the circulation and exerts a pernicious influence (anaphylaxis). The mucous membrane of the large intestine seems to possess no protective agency to prevent the absorption of peptones, probably because the large intestine is not called upon to harbor complicated protein molecules or genuine proteins. The fact that no anaphylactic symptoms result when enemata, containing complicated protein molecules are given, is probably due to the action of the liver.

Salvarsan.—O. Kren says that judging from the numerous tests of the salvarsan in the dermatological department of the Vienna University clinics it is to be considered as an extremely effective anti-syphilitic, whose application profoundly influences the course of syphilis. Its therapeutic worth is greatest when given in the primary stages. In these cases of fresh scleroses with negative Wassermann reaction, it is capable of inhibiting the eruption of secondary symptoms with few exceptions. A few of these cases have been under observation for over two years and have remained free from secondary symptoms. In scleroses where the serum reaction is positive, the absence of secondary symptoms is less frequently observed. Salvarsan acts very favorably in the third stage and in hereditary lues, less favorably in the secondary stages; in the latter the administration of small, gradually increasing doses is especially to be recommended. Contraindications exist in cases with increased blood pressure, severe nerve affections, diseases of the ear, especially the middle ear. There is no particular danger in applying the remedy in cases not presenting these contraindications. Its neurotropic action is very small when compared with other arsenic preparations.

LYON MÉDICAL.

February 9, 1913.

Neurotropic Properties of Salvarsan.—A. Morel and G. Mouriquand report an experimental study of this question, which has a direct bearing on the untoward nervous phenomena sometimes appearing after salvarsan injections. The amounts of arsenic found in the brain, including cerebellum, medulla, and cranial nerve roots, were no greater than in untreated animals, though in one instance the combined medulla and spinal cord showed a slight excess. Almost always, on the other hand, large amounts—up to 0.14 per cent.—were found in the liver. The kidneys contained only a relatively small amount, sometimes only a trace. The bile and heart, in the one instance in which they were examined, showed 0.2 per cent. and 0.083 per cent., respectively. These results do not agree with those of Mouneyrat, who concluded that salvarsan was distinctly neurotropic.

PRESSE MÉDICALE.

February 15, 1913.

Origin of Hemolysins.—C. Achard, C. Foix, and H. Salin review recent experimental work, including their own, bearing on this subject. The conclusion reached is that the property of producing hemolysins does not belong to any single organ, or even to any definite type of cell. The spleen is only a relatively small factor in an extensive hemolytic system, and all cells capable of phagocytosis can secrete hemolysins. Kupfer's cells in the liver, the pulmonary endothelium, the mobile or potentially mobile cells in the connective tissue spaces, and probably the endothelia of serous cavities and vascular channels are capable of exerting this function. The secretion of hemolysins beginning after the onset of phagocytosis continues wherever the large phagocytic endothelial cells or macrophages congregate, but it is not limited to these areas, as any cell in the body, free or fixed, which has acted as a phagocyte, can likewise secrete hemolysins. The production of hemolysins and the phagocytosis of erythrocytes thus appear to be merely two phases of the same function.

Modified Tests for Acetone and Diacetic Acid.—S. Bonnamour and A. Imbert recommend the use in Legal's test for acetone of a reagent consisting of ten grammes of glacial acetic acid and ten cubic centimetres of one to ten solution of sodium nitroprusside; kept in a dark colored bottle this solution does not deteriorate for several months. The test is performed by adding to fifteen c. c. of filtered urine in a test tube twenty drops of the reagent and overlaying the mixture with ammonia water. The presence of even one part in 2,000 of acetone causes a purple ring to appear at the surface separating the two fluids. Gerhardt's test for diacetic may be rendered much more sensitive than usual by proceeding as follows: Dilute the urine with four parts of water; to the resulting fluid add, drop by drop, ferric chloride solution diluted one to ten. Normal urine, or urine containing acetone alone, will show only a white cloudy precipitate; urine containing as little as one part in 10,000 of diacetic acid, on the other hand, will give a purplish black cloudy precipitate. These tests are both convenient for bedside use. It is important to test for diacetic acid in diabetic cases, as acetone may be present without glycosuria, and does not independently imply a tendency to diabetic coma.

February 19, 1913.

Functions of Bile.—H. Roger discusses this question in the light of recent experimental work. The biliary secretion contains no digestive ferments, but exerts a zymosthenic influence, i. e., it augments the action of certain enzymes—the pancreatic amylase and the intestinal lactase. It possesses the property of attracting from within the intestinal cells the ferments elaborated therein, notably invertase, and thus plays an important rôle in the digestion of certain sugars. It cooperates in the digestive process and the absorption of fats. It exerts a special action on the albumins and peptones, which it first precipitates from acid solutions and later redissolves. Although devoid of bactericidal properties, it hinders intestinal putrefaction by favoring the growth of certain microorganisms,

such as the colon bacillus, at the expense of the anaerobes, which are the chief factors in putrefactive processes; by diminishing the secretion of ferments elaborated by the bacteria themselves, and by hindering the action of bacterial ferments on substances susceptible to fermentation. It lowers the activity of toxic products of bacterial origin. Finally, it prevents the coagulation of mucous by the mucinase present in the intestine; disturbances in the secretion of bile are accountable for certain forms of mucomembranous enteritis.

MÉDICA SEMANA.

January 23, 1913.

Study of Nasal Tumors.—Cruz Correa says that the etiology of some of the nasal tumors is, in many cases, impossible to determine. Many anatomopathologists are prone to admit that such tumors result from anomaly, that is, an irregularity in the development of the anatomical elements which form the tissues. Ziegler gives the name tumor to all new formation that has a tendency to develop under the influence of a congenital anomaly. He establishes four groups to classify these tumors: One for those which have by origin local malformation of the tissues, in which group are included many osteomas, cylindromas, angiomas, gliomas, sarcomas, adenomas, and many teratoid tumors because they are remains of fetal formations. In the second group he includes all tumors consecutive to traumatic lesions. In another group, the third, he embraces all tumors which grow from granulation tissue with a subsequent production of cicatricial tissue; in the fourth group he includes the tumors whose development is due to the impaired regression of the phenomena to which the elements which compose the tissues are submitted. The modern classification of these tumors has a tendency to group them according to their blastodermic origin, having established two principal groups; one for the tumors composed of connective tissue, and another for the epithelial growths.

Reducing Power of the Liver.—Fernández points out that since Ehrlich averred that the hepatic cells possess a strong reducing activity, the reducing power of the liver has come to be considered an unquestionable fact. Pflüger showed that from one litre of bile can be extracted, by vacuum, 188 c. c. of carbonic anhydride and 564 c. c. by the action of acids. It is a fact that a large quantity of the urea eliminated is due to the oxidation in the liver of the aminoacids of the albuminoid matters. Abelous and Biarnes have proved that the liver is one of the glands that possess great oxidizing power, and Wohlgemuth is of opinion that this transforming power of the liver is not due to the hepatic cell, but to the ferments contained therein. The author, after laborious experiments, says that in his opinion this reducing power of the liver has been somewhat exaggerated.

Prostatotomy.—Sarrallach says that in the etiology of hypertrophy of the prostate there are three essential factors: Congestion, inhibition, and impediment to the free passage of urine; the other factors are only secondary. The author concludes by saying that after the prostatotomy is performed there always remains a portion of prostatic tissue, and

that some authors, like Cuneo, believe that what is removed is not the prostate, but adenomatous juxta-urethral neoplasms of glands of the posterior urethra independent of the prostate.

Danger of a Sudden Change from a Horizontal to a Vertical Position in Acute Diseases.—Léduc states that we have no specific treatment for a number of acute diseases, therefore the physician must guarantee the care of the organs and the regularity of their functions until recovery is assured. The principal factor in the preservation of life is the circulation, so the resistance of the heart is one of the main symptoms on which to base a prognosis. Léduc says that the most frequent and by no means the least danger for the heart is a sudden change of the patient from the horizontal to the vertical position. It is frequently observed when a healthy individual rises suddenly to assume a vertical position, the heart yields, the blood pressure is lowered, and the brain becomes anemic, consequently dizziness and vertigo are manifested. The author believes that a sudden change of a patient to a vertical position lessens the probabilities of cure in cases of severe fever and many acute diseases.

LANCET.

March 1, 1913.

Surgery of the Thyroid Gland (Lecture I).—James Berry deals first with exophthalmic goitre and says of the thyroid in this condition that the gland presents a solid, almost homogeneous appearance, which is constant and typical in all cases of well marked disease. He believes it easily recognizable at operation by mere inspection. In his experience, in every case of exophthalmic goitre, the thymus has also been enlarged, sometimes to a very great extent, weighing several ounces. He believes that it probably plays some important part in the pathology of the disease. He does not agree with the frequently made statement that the demonstration of an enlarged thymus constitutes a contraindication to operation for exophthalmic goitre. Regarding the parathyroids, he says that it does not matter in the least whether the portions of the thyroid removed contain the parathyroids or not; if only enough of the healthy thyroid tissue is left, tetany will not develop. Evidence is introduced to controvert the opinion that the parathyroids have special functions, and Berry holds that they are merely collections of undeveloped thyroid tissue which, after the removal of the thyroid gland, or a great part of it, are capable of developing and of taking on the functions of this gland. The exophthalmos of the disease is due to an accumulation of fat in the orbit, and never to any other cause. One of the most important symptoms for an early diagnosis of this disease is the fact that the patient always seems to suffer with the heat and has to be lightly clad on account of this subjective sensation. Concerning the medicinal and other nonsurgical forms of treatment, Berry believes that the former, the medicinal, does nothing to cure, but that rest, enforced and prolonged, is of considerable value, chiefly, if not solely, on account of its beneficial effects on the heart. He has found that a diet consisting largely of milk is often of noticeable benefit and that the use of considerable sodium chloride also seems to cause improvement in certain cases,

both of which may possibly depend upon some action of the mineral salts, the metabolism of which seems to be deficient in the disease. The serum treatment of Beebe is regarded as having some beneficial effect, especially in early cases, but it is in no way a final remedy.

Typhoid and Paratyphoid Vaccination with Live Attenuated Vaccines; Mixed Vaccines.—Aldo Castellani prepares the attenuated live vaccines of typhoid and paratyphoid by growing the avirulent strains of these organisms for twenty-four hours in broth at 35° C. These are then attenuated by exposure to 49° or 50° C. for one hour. The first dose is of 500 million; the second of twice this amount, at an interval of a week. By both human and animal experiments these vaccines have been shown to be innocuous, and they are believed to be more efficient than the killed vaccines. Their keeping properties are fairly good, and even when stored at room temperature, they tend to lose in numbers of living organisms with time. Dysentery and cholera vaccines can also be prepared in much the same way, but for the dysentery vaccine broth should not be used. It should be replaced by peptone water to prevent the development of very painful infiltration at the site of injection. The use of these living attenuated vaccines is associated with rather more intense reactions, both constitutional and local, than are seen after the killed ones; but this is compensated for by the greater immunity which these confer. The author does not offer any considerable statistics from observations on man in support of this contention.

Perforation of Gastric or Duodenal (Pyloric) Ulcers.—Edred M. Corner sums up his examination of forty cases and five years of the literature relating to gastroenterostomy in this condition as follows: 1. Many subjects of the perforation of gastric ulcer are benefited by gastroenterostomy. 2. Secondary, that is, after the patient has recovered from the immediate dangers of the perforation, gastroenterostomy appears to be better than a primary. So far as the operation is concerned, Corner calls attention to the frequency with which one encounters such marked soggyiness of the region of the perforation that the suture material cuts through and fails to hold, even during the operation. In view of this he has employed a method of closing the perforation by means of the omentum, which is held in contact with the region by two or three sutures. The site is then drained by means of gauze or a cigarette drain, which is removed after thirty-six hours. His results with this method have been excellent, chiefly on account of the great saving of time and consequently of shock.

Contraction Ring as a Cause of Dystocia.—Clifford White gives the following table of differential diagnosis between the contraction ring and the retraction ring:

Contraction Ring.

I. Localized thickening of the wall of the uterus due to the contraction of the circular fibres over a point of slight resistance, most frequently over a depression in the child's outline or below the presenting part.

Retraction Ring.

The junction of the thinned lower uterine segment with the thick retracted upper uterine segment.

Contraction Ring.

2. The uterine wall at the site of the contraction ring will therefore be thicker than it is either above or below.

3. The wall below is neither thinned nor overdistended.

4. The presenting part is not forcibly driven into the pelvis.

5. The child may be wholly or mainly above the contraction ring.

6. The body of the uterus above the contraction ring is usually relaxed and not tender.

7. Round ligaments are not tense.

8. A contraction ring may occur in the first, second, or third stage of labor.

9. A contraction ring does not vary in position as labor goes on.

10. A contraction ring is rarely felt on abdominal examination.

11. The patient's general condition is good.

12. Causation: premature rupture of the membranes; intrauterine manipulations.

Retraction Ring.

The uterine wall above the retraction ring is much thicker than it is below it.

The wall below a retraction ring is both thinned and overdistended.

The presenting part is or has been jammed into the pelvis.

Part of the child must be below the retraction ring.

The body above a retraction ring is tonically contracted and hard.

Round ligaments stand out.

A retraction ring practically always occurs late in the second stage of labor.

A retraction ring gradually rises as retraction of the upper uterine segment proceeds.

A retraction ring may frequently be felt per abdomen.

The patient's general condition is bad.

Causation: obstructed labor.

The treatment of the dystocia caused by a contraction ring has been tried along many lines, but White believes that only the following points are worthy of serious consideration: The possible use of chloral hydrate, and occasionally inhalation of amyl nitrite has also relaxed the contraction. The ring may in some cases be dilated; sometimes it is possible to accomplish this manually, but usually the use of instruments must be resorted to. It is also possible, at times, to complete labor in some cases by the aid of traction with forceps. In every case in which there is a ring around the neck of a dead child cleidotomy is indicated. Cæsarean section is the indication when there is a ring below a living child.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 6, 1913.

Diverticulitis.—Joseph Stanton reports five cases of inflammation of Meckel's diverticulum that have occurred in his practice within the past two years. The symptoms may be said to be those of a left sided appendicitis. The points he makes are that this is not a rare disease, that recurrent attacks of left sided abdominal pain with tenderness and tumor formation, in the absence of any active urinary disturbance, are usually due to inflamed diverticula, that as a focus of chronic irritation it may be a starting point of cancer of the sigmoid, and that surgical removal is the only perfect cure.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 8, 1913.

When is Operative Treatment Indicated in Chronic Dyspepsia?—William H. Wathen insists that there is but one treatment that can cure the inveterate dyspepsia caused by calloused gastric or duodenal ulcer, and that is surgical. While the symptoms may subside under other treatment, by

diet, rest, and correct hygiene and sanitation, the disease is not cured; the symptoms will return in due time, especially in the case of duodenal ulcer. While the treatment of these cases is operative, we must always be able, when the stomach or duodenum is exposed, to demonstrate, by sight or touch or both, the presence of the ulcer. As the ulcer has invaded all the layers of the walls this can be done. If no ulcer can be seen or felt, the abdomen should be at once closed, unless some other pathological condition is found. The writer adds that ninety per cent. of gastric ulcers are found in the lesser curvature, and that ninety per cent. of all duodenal ulcers are in the first inch of the bowel; that twenty-five per cent. of calloused ulcers are in the stomach and seventy-five per cent. in the duodenum, and that gastric ulcer is multiple in about six per cent.; and that seventy-five per cent. of gallstones are in women, and twenty-five per cent. in men. Free hydrochloric acid in excess is found in every case of duodenal ulcer at some more active phase of the disease, and this is practically true in gastric ulcer, but to find this excess frequent examinations are necessary at different stages of the disease. Free or occult blood will be vomited or found in the feces, in every case of duodenal ulcer, and in all or nearly all cases of gastric ulcer, if the examinations are repeatedly and carefully made. While ulcer of the pyloric canal of Jonnesco is relatively infrequent, the writer found in two cases operated in open perforation, just proximal to the pyloric vein.

Results with Tuberculin (Dixon's) in Advanced Chronic Ambulatory Tuberculosis.—A. P. Francine and H. J. Hartz report eleven cases, with histories, in which the tuberculin treatment was used. The writers were thoroughly familiar with the course of health in the cases described for a long period of time. These eleven cases were, with one exception (a glandular case), of an advanced chronic fibroid type, which had shown a fairly good resistance while under treatment, but the patients were unable to work and showed progressive diminution in health, weight, and strength. This deterioration was at least checked in every case while tuberculin was being used. Every patient was distinctly improved in health and, during or following the course of tuberculin, was able to resume and remain at regular work, so that the tuberculin at least seemed to be the sole added factor bringing about the improvement. Apparent cure marked the case of glandular tuberculosis. While tubercle bacilli disappeared from the sputum in several of the cases during the treatment, the majority still showed the presence of tubercle bacilli even after the full course of injections. The disappearance of râles was an indication of distinct improvement in the local condition of the lungs. Tuberculin proved a valuable therapeutic measure in this series of cases of advanced chronic tuberculosis, where there was fair resistance, with little or no fever. The reactions with Dixon's tuberculin (tubercle bacilli extract) were uniformly mild and without untoward influence on the course of treatment. In the preparation of all tuberculins there is an effort to retain the favorable toxines of the bacillus and to eliminate those that are harmful to the human organism; the writers express the opinion that for general use, especially in ambulatory

cases, a preparation of mild potency and toxicity is safer and more desirable. Dixon's fluid was found to be a safe and effective tuberculin of this type.

Poisoning by Lithium.—S. A. Cleaveland, during an investigation on the action of uric acid, took rather large doses (two grammes) of lithium chloride, and experienced toxic symptoms differing in some respects from the usual phenomena of lithium poisoning. The notable features of the case were marked muscular and general prostration, the occurrence of vertigo, and eye and ear symptoms resembling those of cinchorism and the entire absence of gastrointestinal symptoms. Two or three doses (from sixty to ninety grains per diem) were sufficient to induce the condition noted.

Intestinal Obstruction.—Alexius McGlannan, from a clinical study of 181 cases of intestinal obstruction, observes that however subtle may be the exact cause of death in these cases, there can be no doubt that accumulated matter in the occluded bowel is extremely toxic and plays an important part in the induction of toxemia. It is necessary, therefore, as the symptoms of toxemia are present, that an outlet be provided for this accumulated material by making an opening into the bowel above the obstruction. The general condition of the patient will determine whether further action is necessary, but this removal of toxic material is the first thing to be done, and if neglected the patient is robbed of about half of his chance for recovery.

Dispensary Abuse and Its Elimination by Organization and the Application of Sociological Methods.—A. R. Warner concludes from a study of this subject that the problem of dispensary abuse exists and must be solved. The initial step in the solution must be the creation in every dispensary of an executive head, having sociological training and interest, having with his assistants final authority to decide upon admissions and having full control of all the functions of the dispensary, except the medical treatment of the patients admitted. The opportunities for preventive medicine and general social service will be developed by this executive staff. To assist in the practical work of meeting the problem there should be a system of classified or gradual admissions and gradual or modified refusals. In one dispensary such a system has been followed with satisfactory and pleasing results; no objectionable features have appeared, and much good has been accomplished.

Deafness Following the Use of Salvarsan.—C. A. Clapp reports a case of deafness following the intravenous injection of 0.6 gramme of salvarsan. The writer is in doubt whether this condition is due to the large dose of arsenic or to the liberation of large quantities of endotoxines, or shows that the drug has not reached the deeper tissues. However, it is a fact that the occurrence of deafness has increased since the use of this remedy, three cases having come under the writer's personal notice within the last two years.

MEDICAL RECORD.

March 8, 1913.

Thorium X in the Treatment of Pernicious Anemia.—Francis E. Park calls attention to the voluminous literature concerning radium and its achievements, adding that little has been published in this country about the sister element, thorium.

Hé describes the physical and therapeutic properties of thorium, and especially its efficiency in the treatment of pernicious anemia, exemplifying the latter by the history of a case under his care treated by this agent. The patient had edema of all the dependent parts, dyspnea upon the slightest exertion, anorexia, feeble digestion, and a blood count of 1,200,000 red corpuscles. During the first three weeks the writer combined the use of thorium with an electric treatment of the long bones and solar plexus, which had given good results in previous cases. The patient failed steadily, and it occurred to the writer that the electricity was in some way neutralizing the effect of the thorium emanations, so it was discontinued. The patient at once began to gain in a very decided manner, and in four weeks he was walking about as vigorous as ever; edema entirely gone, digestion and appetite fine, and a blood count of 4,800,000 red cells which one week later went to 5,280,000, the blood picture being normal. The remedy was given almost entirely by the vein, 20,000 Maché units being injected with a glass syringe and a 27 gauge needle, into the median basilic vein, every other day, without causing any irritation. The writer asserts that the evidence is irrefutable that in thorium we have the most potent remedy to aid that is yet known to science, whether thorium x proves to be a specific or not for pernicious anemia. Many years must elapse before one can positively say whether such a case is permanently cured.

Rationale of the Use of Adrenalin in the Treatment of Asthma.—Carey P. McCord believes it reasonable to conclude that adrenalin increases the lumina of contracted bronchioles, which dilatation is probably the basis for the beneficial action of adrenalin in the treatment of asthma. This dilatation is produced, whether the remedy is used subcutaneously, intravenously, or endobronchially. While the action is transient, it is, nevertheless, very effective in relieving an acute attack. The subcutaneous method is apparently the most transient. The administration is simple and is followed by no untoward secondary effects.

Necessity of Early Institutional Treatment in Mental and Nervous Diseases.—F. H. Barnes emphasizes the fact that one of the first principles of the treatment of the insane is to remove them from the environment associated with the origin or the progress of the disease, and to present to them an entire change of scene and of all surrounding influences, so as to interrupt the morbid train of thought and remove those diseased imaginations which distress the patient. The writer is convinced that the time has come when the profession must become a unit and educate the laity to the necessity of placing their relatives in a proper environment at the earliest possible moment, so as to avoid the results of long delay as seen in all institutions.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

February, 1913.

Relation of Anaphylaxis to Immunity and Disease.—Victor C. Vaughan states that all the problems of protein sensitization have not been solved. The specific ferments elaborated by living cells are determined by the proteins brought in contact with them, but little is known of these bodies

called ferments. It is a curious fact that small doses have no such effect. The writer holds that the toxins are ferments, and if this is true the subject of the etiology of disease is greatly simplified. In conclusion the writer promulgates what he believes to be two biological laws: 1. When the body cells find themselves in contact with, or permeated by, foreign proteins they tend to elaborate specific ferments which digest and destroy the foreign proteins; 2, when body cells are attacked by destructive ferments they tend to elaborate antiferments the function of which is to neutralize the ferments and thus protect the cells.

Chronic Purpura, and Its Treatment with Animal Serum.—Henry L. Elsner and F. M. Meader call attention to chronic purpura, place on record the histories of two cases of the disease, and report the results of treatment with animal serum. In the first case the animal serum received a long and fair trial, and they are convinced that its effects were purely symptomatic and not curative and that, beside its effect in controlling the hemorrhagic lesions between the injections, the serum exerted a decided tonic and exhilarating effect. This patient is still suffering from chronic purpura, the pathogenesis of this case as of others is clouded, there being probably an underlying constitutional disturbance; furthermore, the injection of the animal serum controls her symptoms better than any other known remedy. The second case, so far as evident symptoms of chronic purpura are concerned, notwithstanding its former chronicity during a period of six years, seems to be cured. In the light of their experience, the study of literature, and animal experimentation, the writers suggest, to prevent annoying anaphylaxis, that injections of serum be made during ten day periods, the dose and number of injections to depend on a close study of the effect of a safe initial and second dose. The large doses suggested by some authors are unnecessary. In "sporadic" hemophilia and acute purpura the writers have had definite and permanent cures. In chronic purpura permanent cure is less frequent. The serum of the bovidia produces violent reactions (fear, rigors, cyanosis, and vomiting) and is not recommended. Rabbit serum is preferred, as it is easily obtained and is effectual. In an emergency antidiphtheritic serum may be used until a fresh rabbit serum is available. Its use is suggested in hemophiliacs forty-eight hours before any needed surgical operation.

The Factor of Fatigue, with Reference to Industrial Conditions.—William A. White pleads for the recognition of the so called social diseases, for a realization that the problem of the various industries, as that problem is concerned with the health of the workers, is broader than that of ordinary physical disease, as it touches the whole question of society, and presents for consideration the neuroses and psychoneuroses as indications of a social disease and not one of the individual. In this class of diseases we have a point of attack upon abnormal social conditions and by their study we learn the best methods of approaching the faulty social conditions which they express and which may be incident to the industrial conditions under consideration. The psychoneuroses become a good

barometer of certain social states depending upon industrial conditions, and many of the specific manifestations of illness are outward indications of certain types of undesirable social conditions.

The Stethoscope in Physical Diagnosis.—Henry Sewall concludes that the sounds heard in auscultating the chest are a mixture of visceral and mural vibrations, of which the latter, especially in the lower parts of the musical scale, may greatly preponderate in intensity, but clinical interest usually attaches only to the former. A firm pressure applied to the bell of the stethoscope will muffle and render more or less inaudible the quasi adventitious sounds due to sympathetic vibration of the chest walls. The stethoscope must transmit by pure air conduction, and its chestpiece must not itself sensibly take up the chest wall vibrations, if we would thus annul the sound from mural vibrations.

Clinical and Experimental Investigation of the Therapeutic Value of Camphor.—James D. Heard and Richard C. Brooks's clinical experiments showed that camphor dissolved in oil and injected subcutaneously in doses as large as fifty grains, failed to produce any definite results, as the variations in pulse and blood pressure were so inconstant as to be valueless as showing a relation to the drug. Clinical fibrillation of the auricle in man was uninfluenced by the drug, and apparently contradicted the laboratory observation, that perfusion of the isolated cat's heart with camphor may remove fibrillation, but is probably explained by the fact that the dose was greater in the perfusion experiments than was possible in the clinical observations, and that the condition of fibrillation in the normal heart was artificially induced. Furthermore, different animal species and varying ages even of the same species show marked differences in regard to fibrillation. In one laboratory experiment, a stimulating effect upon the circulation was observed, due probably to the fact that the animal was emaciated and moribund and possibly not possessed of sufficient glycuronic acid to combine with the camphor. The writers conclude that while camphor may be active in disorders accompanied by an abnormally small glycuronic acid content, and while experiments demonstrate that the drug has a favorable effect upon heart muscle poisoned by chloral, muscarine, or strychnine, nevertheless, one should not rely on camphor as a cardiac stimulant nor fear it as a toxic agent in the doses employed by the writers and under the conditions studied.

AMERICAN MEDICINE.

January, 1913.

Acute Gastroenteritis in Young Children.—Boyce W. Knight states that diarrhea in the young child is brought about by one of two causes—diminished absorption of water by the intestines, increased secretion of fluid from the intestinal mucous membrane, or a combination of both. In the greater number of cases it is due to diminished absorption from the intestinal tract. The bacteriology of summer diarrhea is not yet solved, but the writer believes the condition is simply an intoxication caused by putrefactive bacteria. The predisposing cause, according to Seibert, is the prolonged exposure of the milk during transportation to tem-

peratures above 60° F., thus favoring rapid bacterial growth and the formation of toxins. Others attribute the condition to the exposure of the body to a high temperature (above 85° F.). The writer believes that neither condition is entirely to blame, although the continued exposure of the infant to high temperature lowers the power of resistance and also the power of digestion and allows the intestine to fall an easy prey to irritation and infection. As to treatment, the writer does not approve of the idea of discontinuing all nourishment for from twenty-four to forty-eight hours, as he considers that the child's vitality is sufficiently low, without depriving the system of needed nourishment. Milk is, however, discontinued in all forms, and a diet of veal or chicken broth, barley water, or best of all, one of the dried cereals containing milk foods is prescribed. Prolonged irrigations, except during the first twenty-four hours, are not approved. One or two colonic irrigations with sterile water at 100° F. suffice. With the exception of small doses of salol or calomel, and one or two drachm doses of castor oil every morning, the use of drugs is not commended.

ANNALS OF OPHTHALMOLOGY.

January, 1913.

The Sociological Aspect of Errors of Refraction.—William Zentmayer considers the bearing of refractive errors in its relation to conservation of vision, to efficiency of labor, as a factor in education, and in the moral development of the child, to workmen's compensation laws, and as a factor in safeguarding human lives. After dealing with each of these headings separately he makes the following suggestions: 1. As affections of the eyes that may lead to incurable blindness, and consequently to an economic loss and a possible tax upon the community, may have their origin in, or be aggravated by, errors of refraction, such errors, when producing symptoms, should be corrected at once. 2. It would aid in the efficiency of labor and prove an economic saving for corporations or others with large office forces to require of applicants an examination of the eyes by a competent ophthalmologist and to insist upon the correction of such errors as should in his judgment be corrected. 3. The examination of the eyes of school children should be compulsory by State law. Such an examination should be made in a thorough manner by a competent ophthalmologist and not, as is done in most cities, by physicians, nurses, and teachers, who in a perfunctory manner endeavor to ascertain only the vision, and this under conditions which give entirely untrustworthy results. 4. As it seems possible that certain types of epilepsy may have a reflex ocular origin, this question should be made the subject of further careful institutional study. 5. In consequence of the adoption in many States, and the probably final adoption in all, of workmen's compensation laws, it is of the utmost importance to employers to have the eyes of their employees and applicants for positions examined by competent ophthalmologists and, where subnormal visual acuity exists as the result of errors of refraction, to have it brought to normal by correction of the error. 6. A campaign of edu-

cation of the public to the danger of intrusting the examination of the eyes and the treatment of defective vision to those whose only qualification is their assurance, and whose only aim is the successful accomplishment of a business transaction, should be inaugurated through the columns of such papers as hold the public good above commercialism.

ARCHIVES OF INTERNAL MEDICINE.

February, 1913.

Effects of Chronic Passive Congestion on Renal Function.—L. G. Rowntree, R. Fitz, and J. T. Geraghty found albuminuria to be almost a constant accompaniment of experimental, passive, renal congestion in dogs; casts were usually present, and red blood cells appeared where the congestion was of considerable degree. The excretion of lactose was the first to become affected by increasing grades of chronic passive congestion, then the excretion of salt and iodide, and lastly, that of phthalein. The phthalein test gives the most reliable information concerning the degree of renal insufficiency and is the test of greatest prognostic importance in chronic passive congestion, a marked decrease in phthalein excretion being invariably associated with signs of renal inadequacy, with ultimate death. Lactose, while of least value in revealing the degree of functional impairment, is of the greatest value in detecting its existence, i. e., from the diagnostic rather than the prognostic standpoint. The excretion of potassium iodide is usually prolonged, and that of sodium chloride is decreased where marked passive congestion is produced. Partial obstruction of the renal vein is not invariably associated with decreased urinary secretion.

Experimental Study of Poison Oak.—E. von Adelung states that while the poison oak, poison ivy, and poison sumach differ botanically, their juices seem to be chemically identical. The toxic principle of rhus, while nonvolatile, can poison at a distance by means of mechanical carriers, such as pollen, plant hairs, or other dust from the plant. The author found experimentally that the principle cannot be conveyed through a layer of cotton by a current of air. It is not destroyed by subjection for one hour to 100° C., and is carried, potent, by the smoke from burning rhus plants. The dermatitis is purely a local affection, and is not spread by the blood or lymph, or by the serum of the blebs. A permanent aqueous suspension of the alcoholic solution of the toxine can be prepared and remains toxic. Absolute immunity in man is improbable, and experimental immunity in animals is not yet demonstrated. Since animals cannot be killed by the pure toxine, it is impossible to demonstrate an antitoxic effect on the part of serum of animals given repeated doses of the toxine. The simplest prophylactic measure against rhus poisoning is to wash well with soap and hot water as soon after exposure as possible. Anointing the skin with cottonseed oil before exposure, and washing this off within a few hours with soap and water, renders prophylaxis fairly certain. The following remedies have therapeutic value: Hot water, ichthyol collodion (five per cent.), potassium permanganate (hot, two

per cent. solution), magnesium sulphate (saturated solution), and tincture of iodine (ninety drops of water mixed with ten drops of the official tincture).

Experimental Eosinophilia.—W. W. Herrick found in guineapigs that a notable eosinophilia could be developed by the intraperitoneal injection of an aqueous extract of *Ascaris lumbricoides*. The substance causing it is a protein. The eosinophilia cannot be produced when the animals are immune to the extract, and its occurrence may therefore be considered evidence of previous sensitization. There is a possible relationship of these facts to the problem of bronchial asthma.

INTERSTATE MEDICAL JOURNAL.

January, 1913.

Further Observations on the Treatment of Human Cancer with Intravenous Injections of Colloidal Copper.—Leo Loeb, H. N. Lyon, C. B. McClurg, and W. O. Sweek report a further series of nineteen cases of human cancer treated with repeated injections of colloidal copper. The history of these cases confirms essentially their former conclusions. Rapidly growing tumors which lead to extensive metastases in the internal organs are not amenable to this treatment. In a large number of cases the effect of the injections gradually decrease. This method, however, causes a gradual, although partial, retrogression of the large majority of inoperable cancers, provided they have not reached the final stage of the disease. *Per contra* the writers believe that the method is too slow in its action to render probable a cure except in a few cases. It is too early to predict the ultimate fate of the patients who are now under treatment.

Influence of Intravenous Injections of Various Colloidal Copper Preparations upon Tumors in Mice.—Leo Loeb, Moyer S. Fleisher, W. E. Leighton, and O. Ishü have found experimentally that three of the five copper preparations which they have used have shown an influence upon mouse tumors, viz., colloidal copper, copper casein A., and copper casein D., while the two remaining preparations (copper casein B. and copper casein C.) showed no influence. While the action of the three preparations is similar they differ slightly in efficiency. The influence of copper casein D. seems to be most marked; that of colloidal copper only slightly greater than that of copper casein A. which latter is the weaker.

Examination of the Cerebrospinal Fluid, Particularly with Reference to the Precipitive Reaction.—Oscar Berghausen attaches to the examination of the spinal fluid the greatest importance, both diagnostic and prognostic, in all cases where symptoms referable to the central nervous system do not quickly subside. In syphilis of the tract we have nearly always an increased cell count, increased globulin, or a positive Wassermann reaction. One or all may be present. When all of these are negative, syphilitic involvement of the central nervous system is absent, although another system may be affected. The reduction test with diluted Haines's solution is present in practically all cases. In the series of cases reported by the writer it was absent

only in one case of paresis (reaction repeated), and in one case of acute cerebrospinal fever. At the height of an acute attack of meningitis it seems to disappear, only to reappear when the intensity of the symptoms abate. For clinical purposes the writer condemns the precipitive reaction as it is too delicate. He would limit its use to those instances where proof is desired that a given fluid or serum is of human origin.

Dietetic Treatment of Ileocolitis.—Clifford G. Grulee asserts that in these cases the choice of a diet is narrowed down to one that will not affect adversely the workings of a very much deranged internal metabolism, and which will, at the same time, form the least suitable medium for a bacterial infection of the colon, if such exists. To this he adds a second postulate, that food for these cases must be nonirritating to the large and small intestine. The writer suggests the use of the proteid of cow's milk (casein precipitated by chymogen or pepsin), suspended in a five per cent. gelatin water; for four or five days a week, subsequently adding a certain amount of buttermilk in place of the gelatin water, and finally returning to a whole milk mixture. Drugs of any sort are rarely used. Colonic flushings are condemned as harmful. There are two ideas in this line of treatment, first, to reduce, so far as possible, any metabolic disturbance, and second, by this reduction to keep up the general resistance of the child to such a degree that colonic infection may be overcome.

JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.

January, 1913.

Anaphylactic Reaction of Plain Muscle in the Guineapig.—H. H. Dale found that plain muscle from an anaphylactic guineapig, freed from all traces of blood and serum, is extremely sensitive to the specific sensitizing protein administered to produce the condition of anaphylaxis. The virgin uterus, especially, exhibits increased tonus in response to extreme dilutions of the antigen. The effect is practically immediate, and is not a mere exaggeration of the reaction which normal plain muscle gives to fresh sera in general, for purified proteins can be obtained which have no effect on normal plain muscle, but are as toxic for the anaphylactic plain muscle as native proteins. No general anaphylactic response of plain muscle has as yet been demonstrated in other animals. Evidence now at hand is to the effect that in the rabbit an anaphylactic reaction of the heart muscle is as predominant as is the unstriated muscle effect in the guineapig, while in the dog it has been clearly shown that the primary effect is in the liver, no anaphylactic shock taking place after this organ has been excluded from the circulation.

Action of Histamin upon Surviving Arteries.—H. G. Barbour showed that histamin or beta-aminazolyethylamin, one of the active substances in ergot, directly applied to excised rings of the carotid, mesenteric, and coronary arteries, always brings about contraction of the vessels. The effect on the coronaries is opposite to that of epinephrine, which dilates them.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, October 21, 1912.

The President, Dr. REYNOLD WEBB WILCOX, in the Chair.

New Method for the Direct Transfusion of Blood; Its Possibilities, Theoretically Considered.—Dr. ALFRED KAHN said that it was only within late years that transfusion had been at all on a practical basis. At the present time there were two good methods for connecting vessels, the suture method and that by mechanical means; and each had its advantages and disadvantages. As to the method of which it was his purpose to speak, he had been unable to find anything in the literature of transfusion dealing directly with the idea underlying it. For want of a better name, he would call it continuous transfusion, or transfusion between two or more subjects. Continuous transfusion was to be carried out in the following ways: 1. Transfusion between two persons, or cross transfusion. The artery of the donor was to be connected with the artery of the donee, and artery of donee with artery of donor; so that the blood would flow from subject A to subject B, and back from B to A; making a crossed and complete continuous circulation. Instead of making an artery to vein or vein to vein connection, as in the method of Dorrance and Ginsburg, now generally practised, and ligating the ends of the two ends of vessels not entering into the transfusion, all ends of vessels were to be used. Thus, the blood was to flow from the upper end of the artery of the donor to the lower end of the artery of the donee, and vice versa. The veins might possibly be made use of in the same way (vein to vein), but it was doubtful whether the transfusion could be kept up for as long a time as where the artery to artery method was employed. 2. Transfusion between more than two subjects. Here a connection was to be made, say, between the left arm of A and the right arm of B, another connection between the left leg of C and the left leg of A, and still another connection between the right leg of C and the right leg of B; making a complete circulation. The connection in each instance was from artery to vein, and the idea was to allow healthy blood to flow from the donor to the recipient. After it had remained in the latter's body for a longer or shorter period, according to the object of the transfusion, the condition of the patient, etc., the return vessel was to be unclamped and the blood allowed to flow back to the donor. This would enable the donor to retain his strength, and at the same time permit the patient's diseased or weakened blood to pass through a healthy body, where it received fresh sustenance, and then return to the diseased body. This method would secure an unlimited supply of fresh blood, and for an indeterminate length of time. It had all the advantages of the present method, with the additional advantage that all the organs of the healthy subject participated in the act.

The therapeutic possibilities of direct blood transfusion had been clearly set forth by other writers, especially Hartwell, and Cole and Winthrop had reported a series of cases of pellagra in which this was employed with excellent results. As to the additional possibilities of continuous transfusion, if our laws of immunity, as now recognized, were correct, the possibility of curing most of the infectious diseases through this method could well be imagined. In this connection he had in mind the transfusion of blood, from a person immune (through a natural or acquired immunity) to a certain disease, to a person suffering from such disease, especially where the transfusion could be continued back and forth from one to the other; thus allowing the blood to be acted upon by healthy immune organs. Again, continuous transfusion might be employed as a means of nutrition. Of course, this would be an extreme measure, but the method possibly had a future before it in cases where a patient was unable to take food, as after gastrointestinal operations, or where a patient was unable to digest his food. Third, there was the possibility of administering by this means a general anesthetic to a patient to be operated upon, through the medium of a healthy individual. This applied particu-

larly to operations on the upper air passages and the thoracic organs. Fourth, in cases where the respiration or circulation failed during a general anesthesia, continuous transfusion might be tried as a last resort. Fifth, it might be employed (after other means had failed), for the purpose of exciting circulation and respiration in the newborn. Among the disadvantages of continuous transfusion were the possible necessity of having the blood of three subjects.

The Effect of Drainage on the Prevention of So Called Typhoid Perforation.—Dr. FORBES HAWKES said that it too frequently happened that the surgeon was called upon to operate on a patient suffering from typhoid fever complicated with a diffuse purulent peritonitis arising from one of the ulcers, which later on had given way, allowing the fecal material to be scattered broadcast in the general peritoneal cavity. The mortality records of such cases, even in the hands of the most skillful and experienced operators, was deplorable. In a general way, the longer the time that had elapsed between the production of the pus in the peritoneal cavity and the operation, the less was the chance of recovery. From the time that the condition first came to be recognized as a surgical one special attention had been devoted to the early recognition of this so called perforation. It was soon found, however, that in many cases there was no symptomatic line of demarcation between a purulent peritonitis arising from the ulcer and the giving way of the ulcer with the escape of fecal material into the peritoneal cavity. But a so called preperforative stage of the disease was conceived of, and attempts were made to recognize such a stage as a sharply defined one.

What, then, was this so called preperforative stage? It was simply that of the peritonitis which began about the site of the ulcer and progressed with it. Its symptoms, therefore, would be simply those of this peritonitis, and the peritonitis would assume either the dry or the wet form, with adhesive or fluid exudate according, apparently, to the nature of the infection. One, then, might say that this sounded very simple. Unfortunately, however, they did not see such lines of recoveries reported. They were not to be found in the literature on the subject, and for a very good reason. This early peritonitis was not being recognized as it should be by medical men in general. It seemed to be recognized only by men who had devoted much time to this special matter and who had the opportunity of constantly handling a large general abdominal service. A sufficient number of early cases had been reported to justify the statement that an early exploratory operation, with the establishment of proper drainage, seemed to exert a beneficial influence in several ways: 1. If the fluid exudative type of peritonitis was found, the drainage would either arrest it or convert it into the dry, exudative type. 2. The relief of tension would favorably affect the peritoneal inflammation there, as it did elsewhere; stopping it entirely in the mild cases, hindering the development of pus in others, and localizing the pus in or near the drainage tract in the more severe cases. 3. The ulcers themselves seemed to be favorably influenced by the peritoneal drainage.

Local anesthesia seemed best for some cases. The shock of simple opening of the peritoneal cavity, and introducing a drain into the right iliac fossa or into the pelvis, ought not to be a marked one. If we waited until pus was produced in the peritoneal cavity our patient's chances of recovery would probably be diminished by at least fifty per cent. The patients with free feces in the peritoneal cavity almost all died.

Dr. VICTOR A. ROBERTSON said it seemed to him that this diagnosis of the preperforative stage offered many difficulties, and personally he was free to confess he had never been able to recognize it. We should look for its occurrence at the end of the third week, when the sloughs from the intestinal ulcers were beginning to separate, but it was possible later in the disease, and even when convalescence had begun. There might be a local inflammation of the serosa, with slight adhesions, which would give the symptoms of which Doctor Hawkes had spoken.

The important matter was not so much to decide positively on perforation, or even impending perforation, but that some abnormal abdominal condition was developing which required operative interference. If exploration were undertaken, any intraabdominal condition could be properly dealt with, irrespective of its location. It was inter-

esting to note that as far back as 1884, Miculicz had operated for typhoid perforation and he then stated that, if suspicious of perforation, one should not wait for an exact diagnosis and allow peritonitis to reach a pronounced degree, but at once institute an exploratory operation, which in many cases is free from danger. He could readily understand, however, that in hospital cases, where the patient could be kept constantly under observation, when every feature of his condition had been carefully scrutinized any change in the condition of the patient, however vague, could be noted, and even a slight change might serve to arouse the suspicion of an impending perforation and lead to a physical examination which would indicate this. In private practice these circumstances were not present, and slight, though important symptoms of impending trouble might be overlooked.

Dr. HENRY ROTH said that some years ago the mortality statistics of intestinal perforation were collected, and these showed that no less than 25,000 persons died in the United States from typhoid perforation alone. Since then the results had not improved very much, because in most of the cases the condition was not discovered until too late for surgery to be of much service. The mortality in the operated cases was about seventy-five per cent. The only way of improving this state of affairs was by an early recognition of the condition, if possible, in the preperforative stage. This could be done only, he thought, by devoting day by day as much care and attention to the discovery of abdominal rigidity and tenderness in typhoid fever patients as was now commonly done in examining for enlarged spleen, a much less important matter. Just as soon as either of those two signs was disclosed an operation should be performed, provided that other conditions capable of causing them could be excluded. He feared, however, that surgeons would not be very successful in getting the cases at this early period, because physicians, as a rule, were not willing to consent to have an operation done unless actual perforation was shown to have taken place.

Dr. A. ERNEST GALLANT said that the late Doctor Van Arsdale, under whom he used to work, had always laid stress on the value of delicate manipulation in the examination of the cases. With a light touch segments of abdominal resistance could often be made out where this would be impossible under rougher handling. He could not quite agree with Doctor Hawkes that the fingers should be flexed in making the examination. Better results could be obtained with the fingers laid flat on the abdomen, or even with their ends slightly tilted up. It was also advisable that the examiner should be as much as possible on a level with the patient, instead of bending over him. With the high hospital beds commonly in use the physician might make the examination standing, but in private practice, where the beds were low, he could examine most successfully while in a sitting posture. The use of the term "rigidity" in this connection seemed to him a mistake, and he preferred, especially in teaching, to call the condition localized resistance. It would be interesting and valuable to know just what kinds of infection resulted in adhesions. The pure typhoid infection was not one of the type which caused adhesions. When he had a case of nonadhesive peritonitis, he always felt that he had a death certificate to sign.

Dr. EDWARD WALLACE LEE said that adhesions did result from typhoid, and in some instances he had observed quite extensive ones. Adhesions following peritonitis from typhoid, however, were not as deadly as had been supposed.

Doctor HAWKES, in closing, said that if in any case there was distinct rigidity we should operate at once, just as we should in a case of appendicitis. The value of the treatment he had advised lay in the production of a distinct adhesive peritoneal tract; so that perforation was either prevented or delayed. If it occurred, the fecal matter was thereby prevented from flowing into the general abdominal cavity. The great point for successful treatment was the recognition of the rigidity. In typhoid fever we had toxic and nontoxic cases, and the toxic cases almost all proved fatal, whatever treatment might be employed. In the nontoxic there was the best chance for drainage, and if perforation did occur the intestinal contents came out into the adhesive tract of which he had spoken. As to the method of digital examination for rigidity (which might be termed localized resistance if one preferred),

some examiners would no doubt find one position of the fingers of most service, and some another position. As to the advisability of the examiner being on a level with the patient, Doctor Gallant's suggestion was a good one.

Stated Meeting, November 18, 1912.

The President, Dr. REYNOLD WEBB WILCOX, in the Chair.

How to Prevent Uric Acid Calculi by Phenol.—This paper, which was read by Dr. William H. Porter, appeared in the JOURNAL for March 15, 1913.

Feeding in its Relation to Infant Mortality.—Dr. JOSEPH E. WINTERS first gave a number of statistics showing the enormous mortality now met with among infants under one year old, and went on to say that this would in large measure be prevented if mothers could universally be induced to nurse their offspring. That women could, as a rule, be brought to do this had been shown in some of the European schools for midwives. The fact that mothers did not more generally nurse their infants was due to a very large extent to the obstetricians and midwives, and the time had now come when there should be a change in this respect. The act of parturition was only half completed when the child was delivered, and it ought to be realized that it was as essential to the mother as to the infant that the latter should be nursed at the breast during the puerperium. At the end of gestation the uterus and its bloodvessels were enormously enlarged, and in order that the involution should be successfully accomplished it was necessary that the organ should contract powerfully and continuously. Now, this could be secured only by the stimulus afforded by the act of nursing. Every time that the infant took the breast the uterus could be felt to contract firmly, and by this nursing, post partum hemorrhage could be prevented and perfect involution effected. It could thus be seen that most of the long train of evils, such as uterine displacements, etc., which now made women chronic sufferers and brought them to the gynecologists could be avoided if nursing at the breast were more generally practised. As to the infant, the colostrum was exactly what it required at the time, and the green stools which it often caused were entirely physiological. Such was the wonderful provision of nature for both mother and child. The vomiting not infrequently observed in the latter was really of no consequence. It was a common practice to give the newborn infant water, but this was a mistake, as it was apt to make it refuse to take the breast. It should be put to the breast just as soon as the mother had received proper attention, and during the colostrum period it should be allowed to nurse as often and as long as it would. It was not necessary that breast milk should be the exclusive food of the child for a very long period, and as early as the second month it might with advantage be allowed one bottle of properly prepared cows' milk in the twenty-four hours. In this way the mother could have an undisturbed night's repose, and the weaning could be gradually and easily accomplished. As a rule, women nursed their infants for much too long a time. The only substitute for mothers' milk was properly modified cows' milk. The young infant required a strictly animal food, and all the proprietary foods were positively injurious. Physiology, as he had long maintained, was the keynote of infant feeding. The food should be of the composition of the body, and that which he had elaborated from the top half ounce of cream was based on strictly physiological principles and was identical with mothers' milk. The proteid was flocculent, and would thus pass freely through the extremely narrow orifice of the infant's pylorus. He was convinced that if the measures he had advocated were to be adopted generally, a most gratifying reduction in infant mortality would result.

Dr. HAROLD CAPRON BAILEY felt that the obstetrician should be more closely associated with the pediatricist. The mortality in early infancy was appalling, and we now recognized that the accomplishment of breast feeding was the greatest factor in its reduction. In fact, breast feeding for only a few days was helpful, and every added week of such feeding would reduce the mortality. If a woman could nurse her child but two or three times a day, statistics showed that even this amount of breast milk was of value. It had been recently pointed out that the colostrum conferred immunity to the child for certain diseases the mother had had. Practically every mother could nurse her baby. Contrary to the general opinion, milk constitu-

ents were but little affected by the food taken by the mother. The sugar content was high throughout, and the protein increased in a definite ratio which was undisturbed by a large amount of protein in the diet. The quantity was variable, and many children needed extra feedings from prepared formulæ. Midwives, practitioners, and obstetricians were prone to take the baby away from the breast, which furnished a physiological food, and place it on the bottle with food prepared according to chemical formulæ. As to the feasibility of persuading women to nurse their babies, of 300 women delivered at the newly organized School for Midwives in this city, all but one nursed during her stay in the hospital. Between ten and fifteen per cent. of the babies had to have extra feedings because of their failure to gain in weight on the amount of nourishment furnished by the mother. Practically the only indications for feeding from formulæ from the start were tuberculosis of the mother and undeveloped breasts with inverted nipples. Eclampsia and breast infections caused temporary undesirability of nursing.

Dr. FRANKLIN WELKER said that from the standpoint of the general practitioner it was questionable whether we paid sufficient attention to the breasts of women during pregnancy. It was the sacred duty of the mother to nurse her child, and it devolved upon her medical attendant to see that she was in every way prepared to carry out this duty. What could be accomplished in this direction had been well shown at the school of midwives in Stuttgart, where the proportion of mothers nursing their infants had been raised from 23 to 100 per cent. It was work of this kind which told in the reduction of infant mortality. There was much to be thankful to Doctor Winters for, for what he had already accomplished; but there was still much to be done.

Dr. WILLIAM SHANNON said that for many years he had been familiar with Doctor Winters's work, both at the college and elsewhere, and he could testify to the marked success of his methods, especially in his own hands. Others perhaps did not meet with quite the same success, because they did not thoroughly understand his plan of artificial feeding, or did not carry out its details carefully enough, or because they did not give it a sufficiently long trial. As to the sugar to be employed in artificial feeding, he had personally found malt sugar very satisfactory. While it was true that this form of sugar was not a constituent of mothers' milk, it was a fact that it was met with normally in the intestinal canal, in the blood, and in the liver and other organs.

Dr. WILLIAM D. TYRRELL said there was but one perfect food for the newborn infant, and that mothers' milk. Moreover, he believed it was practicable to have every mother (or at least ninety-nine per cent. of mothers) nurse her child. Active tuberculosis in the mother was really the only contraindication to nursing. Breast milk contained certain protective bodies which were not to be found in any artificial food, and this constituted one great element of safety. It seemed evident that a marked reduction in infant mortality might be effected if, in the first place, mothers generally could be induced to nurse their children for at least one, two, or three months, and if, second, a proper artificial food were selected in the few cases where this was impracticable. In regard to the amount of fat in such a food, four per cent. was not excessive, for this was normal. An ample fat content was, indeed, a physiological necessity. This kind of food was a source of energy. Fat entered into the composition of the protoplasm of every living cell, and it was therefore essential for the growth of the body; while, with a high percentage of fat, only a minimum of protein was required. Excess of both protein and sugar was productive only of evil. Furthermore, excess of fat protected the protein already in the cells. For these reasons, therefore, he knew of no method of artificial feeding which produced such uniformly good results, in such a large percentage of cases, as that of Doctor Winters.

Mr. LAWRENCE said that Doctor Winters had condemned pasteurization, and he would like to inquire his reasons for this.

Dr. J. MILTON MABBOTT said that he was much pleased to hear Doctor Winters speak so strongly on the marked benefit on the mother to be derived from nursing her infant. While on this part of his subject he might perhaps

well have gone a little further and referred to the necessity of attention to the nipples during pregnancy, to prepare them for nursing. In regard to nursing, therefore, we ought to have in mind four things: 1, The preparation of the nipples; 2, immediate nursing—not waiting for twelve hours as recommended by some authorities; 3, the withholding of water from the newborn infant; in this particular he had to confess that he had often been guilty of giving one or two teaspoonfuls of boiled water to the baby, but he suspected that Doctor Winters was correct; 4, where a substitute for the mother's milk was required there could be no doubt that the top milk advised by Doctor Winters was by far the best in the earliest days of the infant's life. Many babies would, of course, get along on other artificial foods; but wherever there was a question of the survival of a baby, it should certainly be placed on the best without delay.

Dr. A. C. PALMATEER said he would like to ask Doctor Winters four questions: 1. What form of sugar he used, and why? 2. At what time he would advise weaning babies? 3. If vomiting were physiological? Personally, he had to confess that he had experienced some trouble from vomiting, and perhaps he had made a mistake in cutting down the period of nursing. 4. When to introduce cereals into the diet?

Doctor WINTERS, in closing, said that if Mr. Lawrence would come to his clinic at Cornell Medical College some day, he could practically convince him of the evils of pasteurization. There he would see, almost dead, infants which had been fed upon pasteurized milk. When extreme heat was applied to milk the product was liable to give rise to the worst form of scurvy and rickets. When the heat was not so great the milk would still cause scurvy—rickets. This was the case with sterilized milk, and some years ago, when sterilization came into vogue generally, there was among infants an immense amount of scurvy, which was almost invariably diagnosed as rheumatism. Sir Thomas Barlow Barton was among the first to describe the condition, and it became known as Barlow's disease. The same was true, in a lesser degree, of pasteurization. Already this autumn he had seen two cases of scurvy from pasteurized milk, and he could not but regard the present widespread predilection for this kind of milk as a positive calamity. No one ever saw a plump and perfectly normal baby which had been fed for a prolonged period on pasteurized milk. At a single clinic he had had no less than four infants with practically no life in them from this cause. As to withholding water from the newborn child, he did not mean to lay this down as an absolute rule; but it was true, as he had said, that the giving of water generally had the effect of making it refuse to take the breast. If it did not have the water it would be compelled to nurse. The sugar he employed was that which nature furnished, milk sugar. In his opinion there was no excuse for using malt sugar or malt soup, and, indeed, every malt preparation was absolutely wrong. It was not physiological, and physiology should be our only guide. As to the vomiting of infants, a great deal of it was due to excessive handling of the child, and as soon as this was discontinued the vomiting would cease. For the young infant he avoided all cereals absolutely, as unphysiological. As he had just said, he had but one guide in his feeding. Why should we give vegetable foodstuffs when there were no secretions which would digest them? In this matter he took his ground from the standard textbooks on physiology in this country and Europe, and therefore when certain men asserted that they had found that the young infant was capable of digesting cereal food, he did not believe them. No such statement could be found in any established work. In reply to a question from the president, Doctor Wilcox, Doctor Winters said that the top milk used varied according to the age of the baby. The method he employed had during a course of years been most carefully worked out both practically and in the laboratory. He had tested it thoroughly in his work, and then his results had been confirmed by a series of laboratory experiments by such men as Doctor Lederle, Doctor Adriance, and Professor Sherman. He could, therefore, speak with some confidence as to the pronounced success which had been obtained. On the other hand, neglect to consider the physical behavior of proteid had led to grave errors and an immense amount of trouble in infant feeding.

Letters to the Editor.

THE FEVER THERMOMETER.

OSKALOOSA, IOWA, March 18, 1913.

To the Editor:

Great publicity has been given in the last few years to the common drinking cup as a disease spreader through germs adhering to the cup and being passed from one person to another. In this connection my attention has lately been called to the ordinary fever thermometer such is used by physicians and nurses. It seems that this is even a greater source of danger as a disease spreader than the drinking cup when one considers the way in which it is used. Physicians have been very careful of late years thoroughly to sterilize other instruments, but seem to have overlooked in a great many cases the fever thermometer. Since this thermometer registers only a little over one hundred degrees it cannot be sterilized in boiling water but by some means such as alcohol.

So far as my observation goes there are very few physicians who give any care whatever to the thorough sterilization of this instrument. Not long ago a physician of good repute and an excellent man was called to attend a member of my family. His method of using the clinical thermometer is the same as that used by the majority of doctors. He took the thermometer from its little metal case, called for a glass of water, rinsed the thermometer around in the water, then reached for his pocket handkerchief to wipe it off. About that time out own thermometer was supplied to him for use. Barring possibly the pocket handkerchief his method is not widely different from others. One physician with whom I conversed on this subject said that, so far as he knew, he was the only one in the local profession who used alcohol to disinfect the instrument.

The drinking cup has been proved, even when washed in running cold water, to be still a disease carrier. How much more so does the fever thermometer become when it is used altogether with some one who is supposed to be ailing. It is taken from the mouth of one patient to another, is used from one patient suffering with a germ disease and carried probably from that patient to one who is only slightly ailing, who may later become infected with an incurable disease through this innocent instrument.

Physicians as well as patients should have the danger of infection well in mind and carefully guard against unnecessary exposure. If as much publicity should be given to the danger from the fever thermometer as has been given to the drinking cup, I believe that it would materially diminish the spreading of disease.

STEWART W. JAMESON.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Materia Medica and Therapeutics. By REYNOLD WEBB WILCOX, M. A., M. D., LL. D., Professor of Medicine (retired) at the New York Postgraduate Medical School and Hospital, Eighth Edition. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xi-832. (Price, \$3.)

In the new edition of this textbook the author has found it necessary to divide the work into two distinct parts, the first upon pharmacy and materia medica, in which these two subjects are fully and succinctly treated, and the second upon pharmacology and therapeutics, with the customary accounts of the actions and uses of the different drugs. Different classifications are employed in these two portions of the work. In the first part the inorganic and synthetic drugs are arranged according to chemical relationships, the vegetable drugs, on the other hand, according to the nature of their physiological effects. In the second part the physiological classification is adhered to throughout, the exter-

nally acting drugs being considered first, and later the drugs acting on various systems or organs. The materia medica is very completely given, though the description of ergot, in respect of the active constituents of the drug, cannot be considered quite up to date. The sections on therapeutical uses contain many useful practical points. The official drugs are alone considered in this book; this may appear somewhat of a disadvantage when it is realized that the utility of such currently employed agents as epinephrine, pituitary extract, acetylsalicylic acid, heroine, and quinine and urea hydrochloride is not referred to. The book contains, however, a large amount of useful information, and well deserves a place in the physician's library. The index is very full and has incorporated in it an "index of symptoms and diseases." This combination of two indexes which might have been inserted separately is a useful feature, as a multiplicity of indexes in a book is sometimes a source of annoyance to its users.

A Handbook on Surgery Intended for Dental and Junior Medical Students. By ARTHUR S. UNDERWOOD, M. R. C. S. (Eng.), L. D. S. (Eng.), Late Examiner Royal College of Surgeons of England, etc., and BAYFORD UNDERWOOD, M. B., B. S. (Lond.), L. R. C. P., M. R. C. S. (Eng.). New York: William Wood & Co., 1913. Pp. viii-244. (Price, \$1.50.)

As an introduction to the study of surgery this little volume can be unreservedly recommended to the medical student. The work is well arranged, and the essentials of the subject are presented clearly and concisely. But the book seems to have been prepared primarily for dental students; and, as one of the authors has served for ten years on the board of examiners in dentistry, the volume may be taken as a fair index of the scope of the examinations in surgery required of candidates for a license to practise dentistry in Great Britain. Viewed from this standpoint, the work fills us with amazement and amusement. It seems that dentists in Great Britain are required to treat (*inter alia*) glaucoma and gonorrhea, piles and dog bites, herpes zoster and corns, syphilis and dislocation of the hip, warts and fractured skull. Just why alopecia areata, fibroids of the uterus, and ingrown toenail are omitted we do not know; possibly it is an oversight which will be corrected in subsequent editions. Verily, the surgical knowledge demanded of the British dentist is (like Sam Weller's knowledge of London) "extensive and peculiar."

Who's Who in Science. International. 1913. Edited by H. H. STEPHENSON. London: J. & A. Churchill, 1913. Pp. xiii-572.

About a year ago, to be exact on May 11, 1912, we had occasion to review the issue of *Who's Who in Science* that year. Since then the publication has changed hands. The present issue is a decided improvement over the previous one, although there are many points which could be improved upon. For example, gynecology and obstetrics, and psychiatry are still omitted from the chairs of the universities. The list of biographies is also far from being complete, although we called attention to this in our former review. There is a department of geography but not of history, which is certainly a science also, and how about education? Even Woodrow Wilson has been omitted. We are well aware of the difficulty of preparing such a book as this, but justifiable criticism should be accepted and improvement be made.

Internal Secretion and the Ductless Glands. By SWALE VINCENT, M. D., D. Sc., M. R. C. S., L. R. C. P., F. R. S.S., Professor of Physiology in the University of Manitoba, Winnipeg, Canada, etc. With a Preface by Professor E. A. SCHÄFER, F. R. S. Illustrated. New York: Longmans, Green, & Co.; London: Edward Arnold, 1912. Pp. xx-464. (Price, \$3.50.)

The far reaching influence of the internal secretions in medicine is well illustrated by this work, which summarizes briefly the conclusions of some three thousand papers and books. The work being largely of the nature of a compilation, is of particular value to those who are attempting to solve the many problems the subject offers. The author, though working under difficulties and with limited library facilities, those of Winnipeg, Canada, is en-

titled to considerable praise for his perseverance. While the work does not seem to throw much light upon the functions of the organs, his conclusions are interesting. Some organs, the adrenals, for example, seem to be hardly better known as to their rôle in the body than they were fifteen years ago, but to the thyroid and parathyroids, which the author tends, rightly in our opinion, to consider as constituting one apparatus, he attributes an influence upon metabolism and antitoxic functions both as to toxic wastes and bacterial toxins. While treating with due regard the prevailing secretory theory of the pituitary body, he finds it, referring to the posterior or neural lobe (along with some American writers), "extremely difficult to imagine how such a structure can be regarded as a secreting gland." The other organs discussed are the liver, pancreas, kidney, testicle, ovary, the carotid and coccygeal bodies, the thymus and pineal.

Technik der Diagnose, Operation und Harnleiterbehandlung bei Nierentuberkulose. Von Hofrat Dr. FELIX SCHLAGINTWEIT. Mit 5 Figuren im Text. München: J. F. Lehmann, 1912. Pp. v-143.

This book is a modern review of the problems considered in the diagnosis and operative treatment of kidney tuberculosis. The duration of life in cases not operated in; spontaneous healing in kidney tuberculosis; and the treatment of the ureter at the time of and after operation are all considered at some length. The author believes that all cases of so called spontaneous healing of kidney tuberculosis should be operated in, because they never really heal, and during the process of apparent healing or encapsulation the bladder may become involved. The bibliography is complete and well selected.

Miscellany.

Nurses Who Seek Unearned Privilege.—Both the friends and the antagonists of the Seeley bill to regulate the nurses of the State are writing to us, says the *New York Times* for March 13, 1913, the one asking support for the measure and the others pleading for help to kill it. Careful consideration of the arguments of both have led to something between a firm conviction and a strong suspicion that the bill is a bad one—that its passage and enforcement, while possibly and temporarily, but not certainly or permanently, advantageous to a relatively small number of persons, would injuriously affect public interests.

The essential feature of the bill, and the only one that anybody really cares about, is a section that would restrict the right to seek employment as "nurses" to the registered graduates of hospital training schools approved by the board of regents. Now, there is no doubt that such nurses, as a class, are superior to those without their experience and teaching, and there would be no imaginable objection to forbidding others to claim or profess to be what they are. That is, the registered nurse has the best of rights to monopolize the title he or she has earned by several years of the hardest kind of work, just as anybody needing the services of such a nurse—and able to pay for them—is entitled to protection from those who would falsely pretend to have the registered nurse's qualifications.

If the Seeley bill went no further than this it would receive general commendation, and ours. But it does go further, and too far, in that it would interfere with getting the kind of nursing, not the best, but still of value, which is all that a great number of people can afford to have—that of nurses who have given less time to preparation and yet have acquired in one way or another a certain degree of competency. These are the nurses who are willing to work for less than the \$25 a week which is the least that the registered nurses, by agreement among themselves, will accept from any patient. Their assistance is better than none, it does not involve as much of the financial strain which makes illness a tragedy for those of small resources, and in many cases no more aid than they can give is needed.

Moreover, the fully trained nurses have not, like doctors, as basis for claims to exclusive recognition, the argument that they are ready to answer every call for service, regardless of the prospect or possibility of compensation. This makes their work a trade or occupation, not a pro-

fession, and, though they have the ordinary right to set what value they choose upon their time, they must endure the consequences in exposure to competition.

Meetings of Local Medical Societies.

MONDAY, March 24th.—Medical Society of the County of New York.

TUESDAY, March 25th.—New York Dermatological Society; New York Psychoanalytic Society; Metropolitan Medical Society of New York City; New York Medical Union; New York Otological Society; Riverside Practitioners' Society, New York; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Alumni Association of Seney Hospital, Brooklyn; Rome, N. Y., Medical Society.

WEDNESDAY, March 26th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; Medical Union, Buffalo; New York Society of Internal Medicine.

THURSDAY, March 27th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Celtic Medical Society; New York Physicians' Association; Bronx Medical Association; Hospital Graduates' Club, New York.

FRIDAY, March 28th.—New York Academy of Medicine (Section in Public Health); Academy of Pathological Science, New York; Society of German Physicians, New York; New York Clinical Society; Manhattan Medical Society; Hospital Graduates' Club, Brooklyn; Audubon Medical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the fourteen days ending March 12, 1913:

Anderson, J. F., Surgeon. Directed to proceed to New York, N. Y., for special temporary duty with reference to Doctor Friedmann's tuberculosis treatment. **Bullard, J. F.**, Acting Assistant Surgeon. Granted thirty days' leave of absence, without pay, from February 22d. **Burkhalter, J. T.**, Passed Assistant Surgeon. Relieved from duty at the Marine Hospital, Key West, Fla., and directed to proceed to Baltimore, Md., and report to the medical officer in command at the Marine Hospital for duty and assignment to quarters. **Currie, Donald H.**, Passed Assistant Surgeon. Granted one day's leave of absence, February 11th, under paragraph 13, Service Regulations. **Drew, A. D.**, Acting Assistant Surgeon. Granted thirty days' leave of absence, from March 1st. **Foster, S. B.**, Acting Assistant Surgeon. Granted fifteen days' leave of absence from February 12, 1913. **Grubbs, S. P.**, Surgeon. Granted three days' leave of absence en route to station. **Lumsden, L. L.**, Surgeon. Directed to proceed from Chicago to Valparaiso, Ind., for conference with health officers. **McMullen, John**, Surgeon. Granted seven days' leave of absence from February 28th. **Ridlon, J. R.**, Passed Assistant Surgeon. Relieved from temporary duty at Ellis Island, N. Y., and directed to proceed to Philadelphia and report to Surgeon W. G. Stimpson for duty in the quarantine inspection of vessels on the Delaware River. **Robertson, H. McG.**, Passed Assistant Surgeon. Relieved from duty at the Marine Hospital, Baltimore, and directed to proceed to Philadelphia, Pa., and report to Surgeon W. G. Stimpson for duty in the quarantine inspection of vessels on the Delaware River. **Smith, J. H., Jr.**, Assistant Surgeon. Directed to report to the medical officer in command of the Marine Hospital, Baltimore, for temporary duty and assignment to quarters. **White, H. F.**, Assistant Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty. **White, J. H.**, Surgeon. Granted seven days' leave of absence en route to station. **Williams, C. L.**, Assistant Surgeon. Granted seven days' leave of absence from February 27th and upon its expiration directed to proceed to Wilmington,

N. C., and assume temporary command of the Marine Hospital at that port.

Appointments.

Drs. Mather H. Neill, Alvin R. Sweeney, William E. Glanville, Harry F. White, and John H. Smith, Jr., have been commissioned assistant surgeons in the Public Health Service.

Board Convened.

Board of commissioned medical officers convened to meet in New York, to make an investigation, under the act of July 1, 1902, of a preparation for the cure of tuberculosis. Detail for the board: Surgeon John F. Anderson, Director of the Hygienic Laboratory, chairman; Passed Assistant Surgeon A. M. Stimson, Hygienic Laboratory, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 15, 1913:

Blodgett, H. R., Lieutenant. Relieved from duty with the Nineteenth Infantry and assigned to duty as assistant to the surgeon at camp of Seventh Infantry. **Craft**, E. D., Lieutenant. Granted leave of absence for one month prior to May 5, 1913. **Hanson**, L. H., Captain. Granted leave of absence for sixteen days from March 11, 1913. **Loving**, R. C., Captain. Relieved from duty as surgeon of the *Thomas*. **Perly**, H. O., Colonel. Granted sick leave of absence for one month. **Pyles**, W. L., Captain. Ordered to temporary duty at Fort Greble, R. I., not later than March 14th. **Quade**, Omar H., Lieutenant. Ordered from Fort Snelling to Fort Leavenworth for temporary duty. **Smith**, L. L., Captain. Left Walter Reed Hospital on March 8th on leave of absence for twenty days.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending March 15, 1913:

Bachmann, R. A., Surgeon. Ordered to the *Delaware*. **Bogert**, E. S., Medical Inspector. Commissioned a medical inspector from December 28, 1912. **Buckley**, John, Assistant Surgeon. Commissioned an assistant surgeon from February 4, 1913. **Dykes**, J. R., Surgeon. Commissioned a surgeon from September 2, 1912. **Ely**, C. F., Surgeon. Detached from the Naval Proving Ground, Indian Head, Md., and ordered to duty at Tutuila, Samoa. **Gates**, M. F., Medical Inspector. Ordered to take command of the Naval Hospital, Mare Island, Cal. **Hartung**, F. A., Acting Assistant Surgeon. Appointment as acting assistant surgeon revoked on March 31, 1913. **Hough**, F. W. P., Passed Assistant Surgeon. Detached from the *Intrepid* and ordered to the Asiatic Station. **Kennedy**, R. M., Medical Inspector. Commissioned a medical inspector from January 22, 1913. **Lynch**, C. P., Assistant Surgeon. Commissioned an assistant surgeon from February 19, 1913. **Lyon**, W. C., Assistant Surgeon, Medical Reserve Corps. Ordered to duty at the Naval Medical School, Washington, D. C. **Reed**, E. U., Passed Assistant Surgeon. Detached from the Naval Station, Tutuila, Samoa, and ordered home to await orders. **Rodman**, S. S., Surgeon. Detached from the Atlantic Reserve Fleet and ordered to the Navy Yard, Charleston, S. C. **Rossiter**, P. S., surgeon. Commissioned a surgeon from December 28, 1912. **Spratling**, L. W., Medical Inspector. Commissioned a medical inspector from January 12, 1913. **Sullivan**, N. R., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Asiatic Station. **Von Wedekind**, L. L., Medical Inspector. Commissioned a medical inspector from October 28, 1912. **Wentworth**, A. R., Medical Director. Commissioned a medical director from December 28, 1912. **Wieber**, F. W. F., Medical Director. Commissioned a medical director from October 28, 1912. **Zalesky**, W. J., Passed Assistant Surgeon. Detached from the Navy Yard, Charleston, S. C., and ordered to the Asiatic Station.

The following have been commissioned assistant surgeons in the Medical Reserve Corps: J. C. DaCosta, M. B. Miller, J. F. Burnham, C. A. Simpson, W. S. Bainbridge,

J. J. Richardson, G. T. Vaughan, J. A. Tompkins, S. S. Adams, D. A. Heffernan, H. A. Hare, W. C. Lyon, A. B. Bennett, H. G. Fuller, L. C. Lehr, W. G. Morgan, L. P. Shippen, A. E. Gallant, W. S. Thomas, H. D. Meeker, W. G. Townsend, C. A. Frink, B. R. Shurly, W. W. Wilkinson, and E. M. Foote.

Births, Marriages, and Deaths.

Married.

Clippinger—Van Vorst.—In Crooksville, Ohio, on Sunday, March 9th, Dr. Wilbur H. Clippinger, of Columbus, and Miss Bertha Van Vorst. **Dabney—Cole**.—In Baltimore, on Wednesday, March 5th, Dr. Cecil Dabney, of Sherwood, Md., and Miss Frances Cole. **Hoffman—Peabody**.—In Westerly, R. I., on Tuesday, March 4th, Dr. Harry Hoffman, of Rittersville, Pa., and Miss Ruth Virginia Peabody. **Hubbard—Johnson**.—In St. Paul, Minn., on Friday, March 7th, Dr. F. G. Hubbard, of Cayuga, N. Y., and Miss Olga L. Johnson. **Lewisohn—Strauss**.—In New York, on Wednesday, March 19th, Dr. Richard Lewisohn and Miss Constance R. Strauss.

Died.

Armstrong.—In Des Moines, Iowa, on Friday, March 7th, Dr. Joseph Walter Armstrong. **Arnold**.—In Atlanta, Ga., on Thursday, March 6th, Dr. Wood Arnold, of Godfrey. **Atkins**.—In Marion, Va., on Sunday, March 2d, Dr. Price W. Atkins, aged sixty-two years. **Billings**.—In New York, on Tuesday, March 11th, Dr. John Shaw Billings, aged seventy-three years. **Carolan**.—In Brooklyn, N. Y., on Saturday, March 15th, Dr. Eugene J. Carolan, aged fifty years. **Clemens**.—In New Orleans, on Thursday, February 27th, Dr. James Edwin Clemens. **Curtin**.—In Philadelphia, on Friday, March 14th, Dr. Roland G. Curtin, aged seventy-three years. **Droge**.—In Brooklyn, N. Y., on Sunday, March 16th, Dr. John H. Droge, aged fifty-three years. **Dougan**.—In Niles, Mich., on Monday, March 10th, Dr. William T. Dougan. **Eggert**.—In Chicago, on Thursday, March 6th, Dr. Frederick Charles Eggert, aged thirty-eight years. **Finnegan**.—In Buffalo, N. Y., on Sunday, March 9th, Dr. Christopher R. Finnegan, aged twenty-eight years. **Gillette**.—In Medina, N. Y., on Monday, March 10th, Dr. Myra Amanda Gillette, aged fifty-nine years. **Grier**.—In Camden, N. J., on Wednesday, March 12th, Dr. Clarence Russell Grier, aged forty-two years. **Isaacs**.—In New York, on Friday, March 14th, Dr. Archibald Ezekiel Isaacs, aged forty-six years. **Johnson**.—In Wilkes-Barre, Pa., on Wednesday, March 5th, Dr. Charles Frederick Johnson, aged fifty-nine years. **Jones**.—In Rochester, N. Y., on Sunday, March 9th, Dr. Frank Adelbert Jones, aged sixty-three years. **King**.—In Muskegon, Mich., on Thursday, March 6th, Dr. Benjamin D. King, aged sixty-three years. **Lake**.—In Fulton, N. Y., on Saturday, March 1st, Dr. Daniel E. Lake, aged seventy-five years. **Lindsay**.—In Little Rock, Ark., on Saturday, March 8th, Dr. Rezin W. Lindsay, aged sixty-six years. **Long**.—In Lowell, Mass., on Tuesday, March 11th, Dr. Merritt Allen Long, aged thirty-five years. **McMahon**.—In Fresno, Cal., on Monday, March 3d, Dr. Frank Abraham McMahon, aged forty-three years. **Morrow**.—In New York, on Monday, March 17th, Dr. Prince A. Morrow, aged sixty-six years. **Roberts**.—In Marshall, Mich., on Monday, March 3d, Dr. Warren Franklin Roberts, aged fifty-one years. **Shartle**.—In Hagerstown, Md., on Monday, March 10th, Dr. John Shartle, aged fifty-four years. **Shimer**.—In Cuero, Texas, on Thursday, March 6th, Dr. William H. Shimer. **Sproat**.—In Worcester, Mass., on Tuesday, March 4th, Dr. William Delano Sproat, aged thirty-eight years. **Stegman**.—In Hillsboro, Mo., on Friday, March 7th, Dr. Joseph E. Stegman, aged thirty-eight years. **Thomas**.—In Boston, Mass., on Saturday, March 8th, Dr. Carlton Revere Thomas, aged thirty-five years. **Thompson**.—In Indianapolis, Ind., on Wednesday, March 5th, Dr. James Livingstone Thompson, aged eighty years. **Tiernon**.—In St. Louis, Mo., on Tuesday, March 4th, Dr. George H. Tiernon, aged twenty-four years.

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MASSIVE DOSE X RAY TREATMENT OF CUTANEOUS EPITHELIOMA.*

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There are two general methods of applying the x ray in the treatment of epithelioma, namely, the fractional dose and the massive or intensive dose methods. In this country the fractional dose technic has been employed to the almost complete exclusion of the massive dose method. In Europe, on the other hand, especially in France, most if not all of the more experienced radiologists are endeavoring to apply, in as few treatments as possible, enough ray to cure the various *cutaneous* affections that are *amenable* to radiotherapy. And this is essentially true in the case of malignant tumors, particularly when the neoplasms are superficially situated, as in the case of epithelioma of the skin.

Not only have American radiologists adhered to the fractional dose technic, but they have demonstrated a decided antipathy toward all direct measurements of the ray, both of its *quality* and its *quantity*, but especially the latter.

For the information of the reader who has had no personal experience with radiotherapy, it may be stated that there are the direct and the indirect methods of qualitative and quantitative measurements. The indirect method consists of judging the quality of the ray by certain fixed standards, the technic being closely associated with the personal equation, because hardly any two radiologists employ exactly the same type of apparatus. Briefly, this technic is as follows: A milliamperemeter is employed to ascertain the amount of current passing through the tube, the milliamperage employed being the same in every treatment. The anode of the x ray tube is always placed at a given number of inches from the skin. The parallel spark gap (or other instrument) which registers the resistance in the circuit, is adjusted at a certain distance. By working with these constants, having had a

great deal of experience, being thoroughly acquainted with all parts of the various apparatus employed at the moment and, above all, possessing a knowledge of all possible sources of error, one is enabled to estimate the penetration (quality) and the amount of ray administered. The accuracy of this technic, while being sufficient for repeated, small doses, does not possess the exacting requirements of the massive dose method. This view may have to be modified in the future, but with the exciting apparatus and tubes available at present, we do not consider that our opinion is too skeptical.¹

The direct method of measurement consists of utilizing many of the factors of the indirect technic, with the addition of employing instruments designed for the purpose of directly estimating the quality and quantity of the ray. There have been many types of apparatus and many schemes advanced with this object in view. There are, for instance, the Holzkecht chromoradiometer and radiometer, the Sabouraud-Noiré radiometer, the Bordier chromoradiometer, the Bordier-Galimard units, the Guilleminot fluorometric quantimeter, the Kienböck photographic quantimeter, the Schwarz precipitation radiometer, the Hampson radiometer, and many devices and schemes originated by Freund, Schmidt, Haenisch, and others for the estimation of the quantity of ray administered. Without going into detail, we believe that the Holzkecht radiometer (not the chromoradiometer),² employed with a modified technic, which will be given in a subsequent communication, is the best procedure to follow for this purpose. In our hands this technic has proved eminently satisfactory, and although not theoretically accurate or "fool proof," the possibility of error, in the hands of the experienced operator, is reduced to the minimum.³

This idea of estimating the quantity of ray is based upon the change in the color of a tablet of platinocyanide of barium which has been exposed to the x ray. A standard color scale is utilized for comparison. The color changes are estimated in Holzkecht (H) units. The unit 1 H is one third of that quantity of ray which can induce a mild erythema of the face of an *adult*. The dose varies with the age of the individual and the part of the body exposed. Skin that has been subjected to irritating chemicals will respond more quickly than

¹Many, in fact most of the German radiologists depend largely upon indirect measurements, employing the direct methods as an occasional control. We think it preferable, however, to depend constantly upon the direct measurements.

²J. B. Stein: A Description of a Method for Measuring Easily and Exactly the Dose of the X Rays in Röntgen Therapy (with literature). *Medical Record*, May 20, 1911.

³G. M. MacKee and John Remer: The Single Dose X Ray Method, *Journal of Cutaneous Diseases*, xxx, 10, p. 528, September, 1912.

*From Doctor Fordyce's clinic, New York University and Bellevue Hospital Medical College.



FIG. 1.—Case 1. Rodent ulcer of six years' duration; 150 x ray exposures by fractional dose method improved but did not cure the epithelioma.

normal skin. Lesions of certain diseases are more sensitive than normal skin. Fair skin is slightly more susceptible than dark skin. Beyond these variations it is a very rare thing to see an example of hypersusceptibility.

Many instruments have also been designed for the purpose of judging the penetration or quality of the ray. Most notable are the Benoist radiochromometer,⁴ the Benoist-Walter, the Wehnelt, and the Walter scales. We have found the Benoist radiochromometer sufficiently satisfactory for this purpose. There are numerous other instruments that will aid one in estimating the quantity and quality of the ray, but space will not permit even mentioning them.

Now, what are the advantages of the massive dose method over the fractional dose method?

1. In the first place the accurate measurement of the dose is hardly ever attempted excepting in intensive treatment, so that the method can be said to be accurate and scientific.

2. The patient is spared the necessity of almost unlimited visits to the physician's office.

3. The last and by far the most important advantage (or advantages) will require some elucidation. Several years ago it was customary to apply the x ray to epitheliomata in very small doses three times a week. It was not uncommon to hear of from thirty to 150 or more treatments being given to one patient. Those who are familiar with past

results will recollect that a certain percentage of the cases were permanently cured, while in an unfortunately large proportion, recurrences were common. It will also be recalled that the recurrences were not only resistant to further x ray treatment, but that in many instances the lesions failed to respond at all and even became so malignant that they could not be controlled. There were instances, too, where the primary epithelioma underwent involution to a certain point, and after remaining quiescent for a time, began to assume malignant tendencies while under the influence of the ray.

As apparatus and technic improved so that the number of exposures in a given case was reduced, the unfavorable results and the recidives were correspondingly diminished numerically. In other words, the nearer the treatment has approached the massive dose method the better have been the results. The application of small amounts of the x ray to the skin over a long period of time will produce atrophy, telangiectasia, pigmentation with or without erythema, and, finally, epithelioma, i. e., a condition similar in many respects to xeroderma pigmentosum.⁵ It might be mentioned here that these features are far less likely to occur if a well filtered ray is employed. They will develop, however, even with the filtered ray, if the applications are repeated often enough and are continued over a sufficiently long period of time. Is it not possible,

⁵Xeroderma pigmentosum is a rare disease of the exposed parts of the body. The lesions consist of lentigines, telangiectasies, atrophy, papillomata, and, finally, epitheliomata. Its etiology is thought to be a hypersusceptibility to actinic rays.



FIG. 2.—Case 1. Same patient shown in Fig. 1, after receiving one massive dose x ray treatment.

⁴J. Belot: Radiotherapy in Skin Diseases, p. 47, New York, 1905.



FIG. 3.—Case 11. Nodular, basal cell epithelioma of two years' duration.

therefore, that so much ray applied to an epithelioma might add to its malignancy?

Cases have been recorded where epithelioma has developed upon a lupus erythematosus, where the latter disease has been subjected to repeated x ray exposures. Janeway⁶ reported an interesting example of this kind at the dermatological section of the New York Academy of Medicine, April 7, 1908. The lupus had been treated with the x rays for four years, after which the solid carbon dioxide had been applied. This was followed by the evolution of a squamous celled epithelioma. Janeway thought that traumatism resulting from the use of the solid carbon dioxide was the direct cause of the epithelioma, but in the discussion Gottheil was of the opinion that the prolonged x ray treatment was the etiological factor, and we are in accord with this view. Rosenbach⁷ reports a similar observation, but, unfortunately, he does not state whether the epithelioma developed secondary to lupus erythematosus or lupus vulgaris. The lupus was cured by the x ray (on this account the case was probably one of lupus vulgaris): three years later an epithelioma developed in the scar. Some of the interest is removed from these observations because a few instances have been recorded where epithelioma has developed upon lupus erythematosus which has not been subjected to x ray radiation.

However, malignant degeneration on the site of lupus erythematosus is very rare, while epithelioma in connection with lupus vulgaris is relatively common. Dubreuilh and Petges,⁸ in reviewing the literature, were able to find only seven recorded cases of epithelioma following lupus erythematosus, to which they added two new instances.

It has been proved absolutely that prolonged and excessive exposure to the x ray can produce cancer. It would seem advisable, therefore, in the treatment of epithelioma with the x ray, to give as nearly as possible the *exact* or *minimal* amount necessary to cure the individual case. This dose may be divided into *several strong* treatments, but not into *unlimited* and oft repeated *mild* exposures. There are several men in this country who have employed the fractional dose method with indirect measurement, but their technic has been *good*, their treatments were *strong* and relatively *few* in number, and their results splendid. We refer particularly to the work of Pusey, Pfahler, and Johnston. Pusey,⁹ for instance, who was one of the pioneers in this work in America, reports 72.5 per cent. of successful results in 111 unselected cases. These cases comprised both the squamous and basal cell types of the disease, some of which were of long standing and malignant in character. The report was made on cases that had been observed for at

⁸Dubreuilh and Petges: De l'épithéliome consécutif au lupus érythémateux, *Annales de dermatologie et de syphiligraphie*, February, 1909, x, 2, p. 106.

⁹W. A. Pusey: Epitheliomata Treated with Röntgen Rays, *Journal of the American Medical Association*, October 5, 1907.



FIG. 4.—Case 11. Same patient shown in Fig. 3, after one massive dose x ray treatment.

⁶Janeway: Epithelioma Developing in a Case of Lupus Erythematosus Treated with the X Ray and CO₂, *Journal of Cutaneous Diseases*, March, 1910, xxviii, 3, p. 140.

⁷Rosenbach: Das Röntgen Carcinom, *Archiv für klinische Chirurgie*, April, 1910, xcii, 4, p. 264.



FIG. 5.—Case III. Nodular and ulcerative basal cell epithelioma of five years' duration.

least three years after recovery. Since this communication, Pusey has recorded even better results, but we mention these early observations to show that even with the technic employed previous to 1907, the results were exceedingly gratifying when the treatment was administered by an expert. At the St. Louis meeting of the American Dermatological Association in May, 1912, Pusey¹⁰ admitted only two failures in thirty-five *selected* cases of epithelioma of the lower lip (5.7 per cent.). The mean average interval that elapsed since the treatment was six years.

These statistics are admirable, and it is possible that they will not be improved upon. However, comparing our own results of the last two or three years with those obtained previously, we admit a bias in favor of certain theoretical considerations and deductions. Time alone can determine if they have any practical value.

We have been able to prove, at least to our own satisfaction, that the only way to cure a cutaneous epithelioma with the minimum amount of ray is to obtain the desired result in one treatment. If, for instance, six H units of a No. 6 or 7 Benoist¹¹ ray, administered at one sitting, will cure a given case, the same effect will not be noted if this dose is divided into more than one treatment. Let us assume that only four or five H units were given at the first séance. It is a definite rule to allow a lapse of three weeks between treatments. Now, at the

end of this time, the additional one or two H units will not suffice for a cure: *It will be necessary again to administer practically the full original dose of six H units.* If the six H units were to be divided into two H units every day or every second day, the difference would be less, but even here the total dose would have to be slightly increased: *the addition to the curative dose would increase in proportion to the length of time elapsing between treatments.* This is true up to four or five weeks, when it becomes necessary again to administer the full curative dose. It is obvious, therefore, that in the fractional dose method considerably more ray will be administered than is necessary for the cure of the lesion. This fact was first suggested by observing the effect of the x ray in the treatment of tinea tonsurans. In the fractional dose method it was common to see a permanent alopecia without the advent of an erythema. In other words, by the time the hair had fallen out a degree of atrophy of the hair follicles had occurred which was sufficient to produce permanent baldness, and yet there had been no sign of an excessive dose. Obviously, therefore, more ray had been administered than was necessary to obtain a temporary alopecia.

Although the histopathology of acute and chronic radiodermatitis has been studied, the biological effect of the x ray is not well understood. The Röntgen ray modifies some cutaneous affections apparently by its ability to cause atrophy of the secreting cells. Other diseases are influenced by the effect of the ray on the vessels. There is evidence, also, in some affections, that an opsonin or



FIG. 6.—Case III. Same patient shown in Fig. 5, after two massive dose x ray treatments.

¹⁰W. A. Pusey: Concerning Epithelioma of the Lip, *Journal of Cutaneous Diseases*, February, 1913, xxxi, 2, p. 71.

¹¹Indicated by the letter B.



FIG. 7.—Case IV. Nodular and ulcerative basal cell epithelioma.

chemical antibody is produced. Is it not possible, that by frequent, mild applications, the tissues are overstimulated, or are taught to resist the beneficial influence of the ray? Can the malignant cell acquire in this way an immunity against the x ray? These, obviously, are questions that must be carefully investigated before it can be definitely ascertained why the massive dose method is superior to the fractional dose method.

Sequeira¹² reported a very interesting case before the dermatological section of the Royal Academy of Medicine on March 9, 1908. Although this observation lacks confirmation it has an important bearing upon the facts mentioned in this communication. The case was one of chronic radiodermatitis of the hands, which exhibited atrophy, telangiectasia, pigmentation, and numerous epitheliomatous excrescences. The condition was produced by frequent exposure to the x ray over a number of years. It was an example of the typical x ray hand seen in so many of the early workers, in which the eruption increased long after exposure to x radiation had ceased. The back of one hand was exposed to a single epilation dose of the ray. Four or five weeks later, when the patient was presented to the society, the keratoses of the treated hand had disappeared, while those on the untreated hand were unchanged.

Ehrmann and Laffont¹³ mention Lomon's patient reported at the Société de radiologie médicale de Paris, April 9, 1911. It was a case of epi-

thelioma which had not been relieved by the fractional dose x ray method, nor by surgical ablation. One dose of thirty-five H units of a *filtered* ray produced a cure.

This naturally brings up the question of the advisability of filtration. The object of filtering the ray is to remove the qualities below a No. 3 or 4 B. These rays have very little penetrative power and are absorbed by the superficial tissues, so that the maximum effect is in the epidermis. Obviously, therefore, if it is desirable to obtain the maximum effect at a lower depth, it is necessary to employ a ray of sufficient penetration. The penetration of a No. 6 or 7 B ray appears to be sufficient for most if not all cutaneous epitheliomata. It should be remembered, however, that a tube emitting a maximum of No. 6 or 7 B ray also delivers rays of both higher and lower penetration. The very soft rays can be eliminated by placing in their path two or three layers of chamois, a thin piece of aluminum, leather, etc. For the present it may be said that filtration of the ray is only necessary when the growth is dense and when it extends into the subdermal tissues. A very thin filter (a single layer of chamois) possibly may be employed with advantage in every case. When a filter is used, *the dose of the ray must be increased in accordance with the thickness and density of the filtering material*. Before leaving the subject of filtration we should like to add that it is largely through this addition to the technic¹⁴ that good results are occasionally obtained

¹⁴We believe that filtration of the ray was first suggested by Pfahler, of Philadelphia.



FIG. 8—Case IV. Same patient shown in Fig. 7, after one massive dose x ray treatment.

¹²J. H. Sequeira: *British Journal of Dermatology*, April, 1908, xx, p. 140.
¹³Ehrmann et Laffont, *Archives d'électricité médicale*, 1911, xix, p. 422.



FIG. 9.—Case v. Small rodent ulcer. This was removed by curetting and cauterization

in the treatment of inoperable carcinoma of the breast, of the mucous membranes, etc., and in the



FIG. 10.—Case v. Same patient shown in Fig. 9. Recurrence few months after curetting. The lesion was removed by the use of carbon dioxide snow.

prophylactic, postoperative treatment of similar conditions. The value of the massive dose technic applies here just as it does in cutaneous epithelioma, only it is not so practical because of the difficulty of administration.

In order to demonstrate how the experiences and opinions of various radiologists differ, we would like to mention some observations made by Schultz.¹⁵ Working in accordance with the known law that the ability of a tissue to absorb the ray is in direct relation with its specific gravity, he has found that some superficial epitheliomata have a lighter specific weight than normal skin, and sometimes, when the lesion extends into the deeper tissues, it may have less specific weight than the musculature. In such instances he has obtained



FIG. 11.—Case v. Same patient shown in Figs. 9 and 10. Recurrence after use of carbon dioxide snow.

superior results by employing a ray of very low penetration. His explanation is that the radiosensibility of tissues of low specific weight are excited more by soft than by hard rays. In other words, an epithelioma of low specific weight, surrounded by tissues of a higher specific weight, will absorb more soft rays than the tissue in its immediate neighborhood and vice versa. Several examples are given in support of his interesting theory.

In support of our technic and theories we should like to mention the following observations:¹⁶

Bordier¹⁷ treats all cases of epithelioma by giving the estimated curative dose at one sitting. If the growth is deep seated a suitable filter is employed. In 1906¹⁸ he re-

¹⁵Frank Schultz: *The X Ray Treatment of Skin Diseases*; translation by James Burnet, New York, 1912, p. 152.

¹⁶This is not a complete synopsis of the literature.

¹⁷H. Bordier: *Traitement moderne des épithéliomes et autres tumeurs malignes de la peau, Consultation médicale française*, 31, 1910.

¹⁸Idem: *Archives d'électricité médicale*, June 10, 1906.



FIG. 12.—Case v. Same patient shown in Figs. 9, 10, and 11, after one massive dose x ray treatment.

ported a number of cases which had been cured in one treatment. In 1910¹⁹, beside reporting a number of new instances, he gives the subsequent histories of the 1,906 cases. There were no recurrences.

Marie and Clunet²⁰ favor the massive dose technic and believe the fractional dose method produces the same effect that is seen on the hands of many radiologists.

Pirie²¹ cured four cases of epithelioma with single doses of the x ray.

Broca²² adds his favorable opinion regarding the intensive treatment of many cutaneous manifestations.

Chuiton²³ insists upon the massive dose method and has elaborated the following scheme: The first treatment is to consist of ten to twelve H units of about a No. 7 B ray: three weeks later a second treatment of five H units of the same ray filtered through a very thin sheet of aluminum. This dose is repeated at the end of another three weeks if the lesion has not undergone complete involution. After a lapse of six weeks following the third treatment, this procedure is advised: 1. If the patient is well, apply five H units to the cicatrix; 2. if the patient is much improved, the three treatments should be repeated; 3. if there has been no improvement, the case should receive surgical attention and a few prophylactic treatments administered to the resulting cicatrix.

Clark²⁴, at the Section in Dermatology of the New York Academy of Medicine, April 7, 1908, exhibited a patient who had been cured of an epithelioma by a single treatment. He employed the indirect method of measurement.

One of us (MacKee) has had over seven years

of experience with the massive dose method. With the indirect method of judging the quality and quantity of the ray employed, the results were very unreliable. Good results were obtained by the use of the Sabouraud and Noiré radiometer, but it was not until 1910, when the Holzknacht radiometer was placed on the market, that we developed absolute confidence in our technic.

Unlike Chuiton (*loco citato*), we have no definite scheme of procedure for all cases. In a case of cutaneous epithelioma we estimate the curative dose in accordance with the age of the individual, the site, and the character of the lesion. This estimation is also based upon personal experience combined with a knowledge of the literature, apparatus, instruments, etc. It is, therefore, impossible entirely to eliminate the personal equation, although this factor is of less importance than might appear at first glance. The necessary knowledge can be gained while working up the technic experimentally. In some instances the estimated dose, if applied at one sitting, would produce too great a reaction. In such cases it becomes necessary to depend upon the second or third treatment to effect the desired result. An exceedingly safe method is to give a normal dose²⁵ at the first sitting and follow this by

²⁵A "normal dose" is now known as the amount of about a No. 6 Benoist ray that will produce a temporary loss of hair from the scalp without the production of an erythema. It is also known as the erythema dose and the epilating dose. It corresponds to the Sabouraud-Noiré B tint, five H units, ten X units of Keimböck's scale, etc. As the dose will vary according to the age, site, etc., it is preferable to depend upon Holzknacht's table as follows: Middle aged adults, face two H, head and joints three H, body four H; children, one H, two H, three H, respectively; aged individuals, three H, four H, five H, respectively.

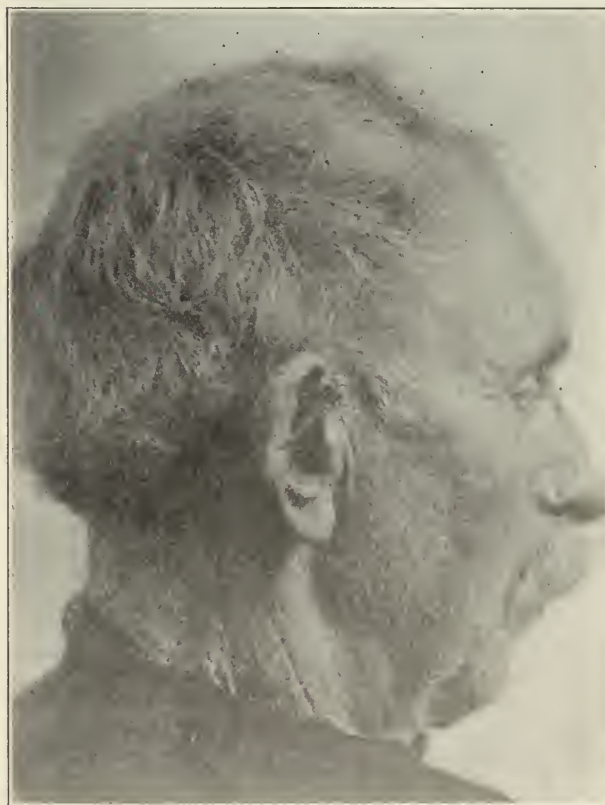


FIG. 13.—Case vi. Rodent ulcer of three years' duration.

¹⁹Idem: *Ibidem*, xviii, 299, p. 991, December 10, 1910.

²⁰Pierre Marie et Jean Clunet: Action des rayons x sur les tumeurs malignes, *Presse médicale*, 85, p. 790, October 22, 1910.

²¹A. Howard Pirie: *Archives of the Röntgen Ray*, 129, p. 428, April, 1911.

²²André Broca: Quelques considérations sur la radiothérapie extensive dans les maladies cutanées, *Archives d'électricité médicale*, December 10, 1909.

²³E. Chuiton: Contribution à une technique meilleure de la radiothérapie des épithéliomes cutanées, *Archives d'électricité médicale*, xix, p. 252, 1911.

²⁴A. Schuyler Clark: *Journal of Cutaneous Diseases*, xxvi, 10, p. 467, October, 1908.



FIG. 14.—Case vi. Same patient shown in Fig. 13, after one massive dose x ray treatment. The photograph was taken before complete recovery.

subsequent treatments according to the indications.

We do not admit that it is harmful, in the treatment of cutaneous epitheliomata, to produce a first degree radiodermatitis; in fact, we consider it advisable to do so. Also, we do not wish to be understood as urging the necessity of a one treatment cure, or of confining the x ray treatment to one exposure. We simply advise the *accurate* measurement of the *dose* and the *cure* of the disease with a *minimal* amount of ray. Now, after this digression, if the first treatment has caused an erythema and yet there is no improvement in the lesion after a lapse of a month, we advise surgical intervention. On the other hand, if there has been some involution, a similar exposure is given four weeks subsequent to the first treatment. We have found that many cases of cutaneous epitheliomata can be completely cured in one treatment. It is doubtful if more than two or three treatments are necessary in any basal celled epithelioma, whether nodular or ulcerative, providing, obviously, that it is amenable to x ray treatment. This is probably true of the squamous celled tumor and possibly also of superficial epitheliomata of the lip. This, however, does not include the treatment of the neighboring lymphatic glands.

So far as concerns cancer, we employ filtration only in deep seated growths or where the tumor is covered with healthy skin. In these instances, too, we employ the massive dose technic, but inasmuch as deep seated growths are less responsive than

those of a superficial nature, the fact that large areas must be treated, and because hard rays are less efficacious than soft rays, we are compelled to be more liberal in the number of treatments. As a substitute for filtration, the skin may be dehematized by adrenalin, by pressure or by ice.²⁶

CASE REPORTS.²⁷

CASE I. Mrs. E. S. I. (Figs. 1 and 2), of American birth and forty-eight years of age. She first came under our observation August 8, 1912, having been referred through the kindness of Dr. Harry Waite. She exhibited a rodent ulcer, of six years' duration, on the left side of the forehead and cheek. It was three inches long and 1.5 inch wide. The lesion extended down to, but did not involve the periosteum. The margin was not indurated.

When the lesion first made its appearance it was removed by curettage and cauterization. Recurrence was prompt and was treated in the same manner. When the ulcer recurred the second time it was treated by the fractional dose x ray method, in the neighborhood of 150 exposures being made in the course of three years. While at first there was some improvement, the ulcer later increased in size in spite of the applications of the x ray, so this treatment was discontinued. Her last treatment was in 1899. Since then only mild antiseptics had been applied. No biopsy was made, the diagnosis being based on the clinical appearance.

On August 8, 1912, six H units of a No. 6 B ray were administered. An erythema developed around the lesion eight days after the treatment and lasted for ten days.

²⁶The discussion of filtration and the treatment of deep seated malignant tumors, inoperable cancer, postoperative cancer, etc., will be reserved for a future communication.

²⁷This report comprises only a few patients of whom we happen to have photographs before and after treatment. They are selected mainly in support of our contentions. A total list of cases, including a statistical table, will be published after a sufficient length of time has elapsed to make the report of value.

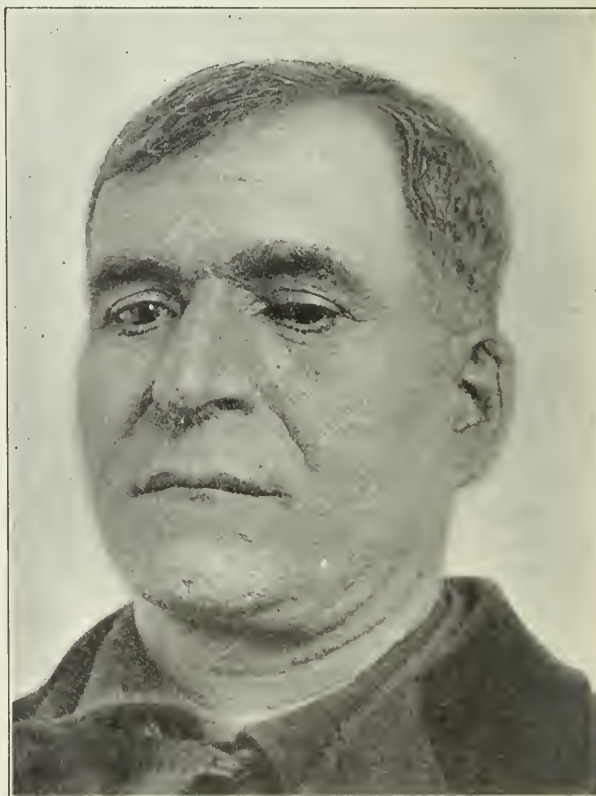


FIG. 15.—Case vii. Small rodent ulcer at inner canthus of left eye.

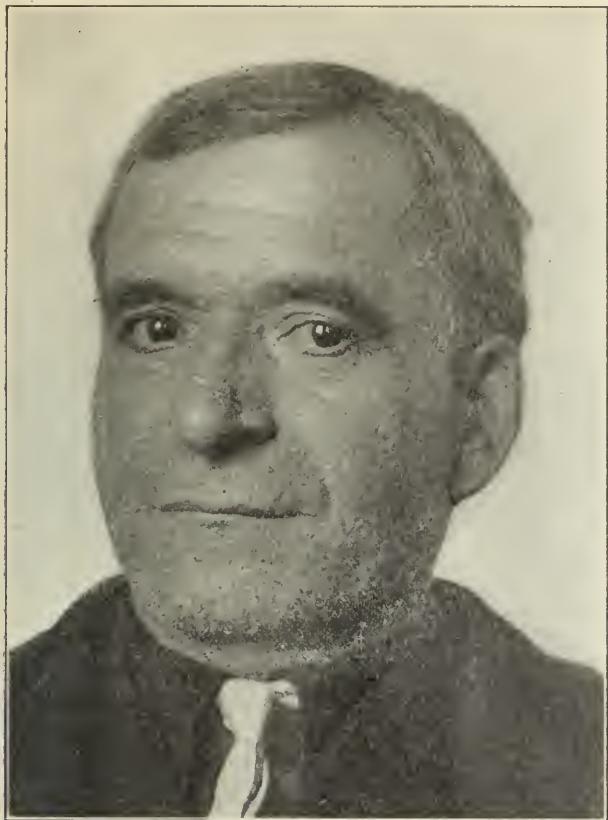


FIG. 16.—Case VII. Same patient shown in Fig. 15, after one massive dose x ray treatment.

On September 27, 1912, the lesion was entirely healed and the second photograph was taken.

This patient was exhibited at the December, 1912, meeting of the New York Dermatological Society. It was the consensus that there was no evidence of malignant tissue *in situ*, but one or two members preferred to reserve opinion on account of a slight scaliness in the centre of the scar. It has been our experience that this scaliness is not necessarily significant and usually disappears in a few weeks or months. It is important, however, to ascertain, if possible, if there is any visible evidence of incomplete cure, and in case of doubt a second treatment should be given. The history of this case is similar to that related by Ehrmann and Laffont (*loco citato*).

CASE II. Mrs. G. D. (Figs. 3 and 4), of American birth and sixty-one years of age. She first came under our observation, March 13, 1911, at Doctor Fordyce's clinic in the New York University and Bellevue Hospital Medical College. The patient exhibited an ulcerating and nodular lesion on the left side of the upper lip, close to, but not involving the mucous surface. The ulcer was 1.5 inch long and an inch wide. The duration was two years. The base of the lesion, which was slightly lower than the level of the normal skin, was composed of a hard, irregular, pearly mass. The margin was elevated and hard. No biopsy was made as there could be no doubt about its being a rodent ulcer.

On March 13, 1911, seven H units of a B 6 ray were administered. This was followed by an erythema which developed on the eighth day and which persisted for two weeks.

On April 14, 1911, the lesion was entirely healed, but there was a little scaling which disappeared in six months.

The second photograph was taken October 1, 1911.

This patient was demonstrated before the New York Dermatological Society at the December, 1912, meeting. Every member agreed that the cure was complete.

CASE III. Mr. D. L. (Figs. 5 and 6), born in Ireland and fifty-one years of age. He first came under our observation at Doctor Fordyce's clinic on March 16, 1912. He exhibited a basal celled epithelioma, the size of a twenty-five cent piece, on his right cheek near the nose. The lesion presented a deep, ulcerating centre, with an elevated, hard, pearly margin. The duration was five years. No biopsy was made.

On March 16, 1912, seven H units of a B 6 ray were applied. This was followed by the usual erythema, and healing was complete in six weeks. In one part of the scar, however, there was a suggestion of a pearly nodule, and as the patient was to be away for several months, four H units were applied June 24, 1912. The man was not seen again until December, 1912, at which time the second photograph was taken.

The patient was demonstrated to the New York Dermatological Society in December, 1912; all the members agreed that it was a complete cure.

CASE IV. Mrs. D. H. (Figs. 7 and 8), born in Russia and fifty-four years of age. She first came under our observation at Doctor Fordyce's clinic on March 15, 1911. There was a lesion on the right side of the upper lip the size of a ten cent piece. It was close to but did not involve the mucous membrane. There was a hard, elevated pearly margin and an ulcerating centre which was covered with a crust. The duration was eight months. A diagnosis of rodent ulcer was based upon the clinical appearance.

On March 15, 1911, seven H units of a B 6 ray were applied. This was followed by a marked erythema. In six weeks the lesion had entirely disappeared. The second photograph was taken on July 19, 1912. The patient is



FIG. 17.—Case VIII. Nodular, basal cell epithelioma.

still under observation and there is no evidence of a recurrence.

CASE V. Mr. T. M. (Figs. 9, 10, 11, and 12) is of Irish birth, fifty-eight years of age. He first came under our observation at Doctor Fordyce's clinic in June, 1906. He presented a split pea sized lesion on the left side of the nose. No biopsy was made, but a diagnosis of basal celled epithelioma was based upon the clinical appearance. The duration was two years.

The lesion was thoroughly curetted and cauterized with acid nitrate of mercury. Recurrence was prompt and was removed with the solid carbon dioxide. The epithelioma returned the second time within a year. He was then given (November 21, 1908) a dose of eight H units of a B 7 or 8 ray. This was followed by healing, and there has been no recurrence since.

This patient was exhibited to the members of the New York Dermatological Society in December, 1912, and there was some discussion as to whether there was still evidence of malignancy present, the upper margin of the scar appeared a little pearly in character.

We predict that in recurrences following a massive dose technic, the epithelioma will still be amenable to radiotherapy in contradistinction to the after effects of the fractional dose method as already mentioned.

CASE VI. Mr. H. M. (Figs. 13 and 14), is of Irish birth, sixty years of age. Was first seen at Doctor Fordyce's clinic in February, 1910. He exhibited a rodent ulcer on the cheek close to the right ear, the size of a twenty-five cent piece. It was nodular, ulcerative, and crusted. The duration was three years.

A single massive dose treatment was applied at the time of the first visit. The second photograph was taken before healing was complete, as it was necessary for the man to leave town. A recent letter from the patient informs us that he is still well.



FIG. 10.—Case VIII. Same patient as shown in Figs. 17 and 18, after two massive dose treatments.

CASE VII. Mr. P. C. (Figs. 15 and 16), Italian, forty years of age, was referred through the kindness of Dr. L. J. Lipset. There was a split pea sized rodent ulcer at the inner canthus of the left eye. The duration was one year. The margin was hard and pearly and the centre crusted.

On January 29, 1911, seven H units were administered. This was followed by prompt healing, and there has been no recurrence.

CASE VIII. Miss J. C. (Figs. 17, 18, and 19), born in Ireland, forty years of age; daughter of Mrs. G. D. (Case II.). The patient was first seen at Doctor Fordyce's clinic August 24, 1912. She presented a typical, hard, nodular type of rodent ulcer on the left side of the forehead.

Five H units of a B ray were administered August 24, 1912. That the quality of the ray was too hard and the dose underestimated was demonstrated by the absence of an erythema following the treatment. Nevertheless, there was considerable improvement, as depicted in Fig. 17. Three weeks after the first treatment the same dose was repeated, followed by further improvement. There was still, however, slight evidence of incomplete cure (not sufficiently plain to be demonstrated by photography). Five H units of the same quality of ray were administered four weeks after the second treatment, and this resulted in a cure (Fig. 19). The total amount of ray used in this case was fifteen H units; the quality was B 8. We feel confident that this lesion would have undergone involution under one application of seven H units of a B 6 ray or nine units of a B 8 ray.

This case illustrates what we have already discussed, namely, that all other factors being equal, *the quantity must increase with the quality*; that there is no advantage in employing a ray higher than a B 6 in superficial epitheliomata; and that when it is necessary to repeat the treatment, the total amount of ray is greater than if the correct curative dose had been applied at the start.

58 WEST FIFTY-EIGHTH STREET.

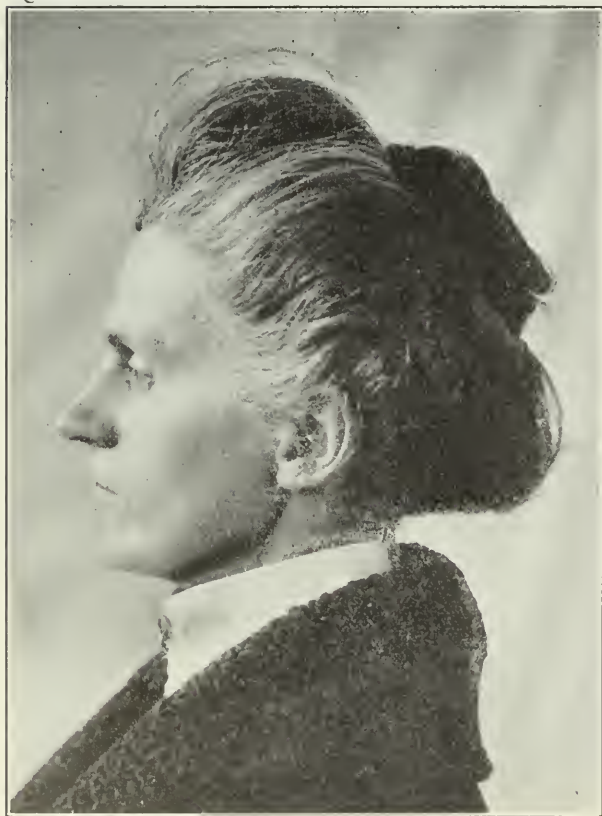


FIG. 18.—Case VIII. Same patient shown in Fig. 17, after one massive dose x ray treatment which was underestimated.

HOSPITAL MORBIDITY STATISTICS.

A Practicable Method of Making Them Uniform and Preparing Them for Analytic Study.

BY CHARLES F. BOLDUAN, M. D.,

New York,

Assistant to the General Medical Officer, Department of Health of the City of New York.

At the present time, in this country, practically the only vital statistics available for the guidance of public health administrators are those collected and published by the various boards of health, namely statistics concerning births, deaths, and marriages. Unless as a result of special investigations, practically no data whatever are available concerning the occurrence and distribution of nonfatal cases of disease, except for the comparatively small group of reportable diseases. In Germany and some other European countries morbidity statistics may also be obtained from the *Krankenkassen*, but such data are not obtainable in the United States. The need of trustworthy morbidity statistics has long been felt, and some progress looking toward the preparation of such statistics has already been made. I refer here to the workable system of morbidity nomenclature prepared by the Bellevue Hospital Committee.¹ Unfortunately, either because of indifference or for some other reason, the adoption

of a uniform nomenclature was then available. Moreover, the difficulty of securing the enthusiastic cooperation of the medical staff of the various hospitals appeared to be an insuperable obstacle, and without such cooperation the plan seemed to be doomed to failure. Taking up the question anew, and guided by a study of methods employed in the Bureau of Records of the Department of Health, the writer has devised what he believes to be a simple, practicable method of preparing uniform morbidity statistics from different hospitals, *no matter what system of nomenclature is employed in such hospitals*. The great advantage of this last point is at once apparent. It makes possible the publication of comparable morbidity statistics from hospitals long before a uniform system of nomenclature has been adopted.

Before describing the plan, it may be well to remind the reader that mortality statistics from a large part of the United States, namely, from the Registration Area, are compiled on the basis of the International classification, and that this compilation has been successfully made even without the active cooperation of the practising physicians who sign the death certificates. The manner of securing uniformity is simplicity itself. Thus in New York city every death certificate sent to the department of health is looked over by an assistant registrar of records, a physician, who indicates by means of a

HOLLERITH TABULATING SYSTEM.

Name of Hospital	Mode of Admission	Sex	Age Yrs. Mo.	Race	Place of Birth	12 Date Admitted	12 Date Discharge	11 Time in Hospital	Cond. Disch.	Occupation	Disease	Complication 1	Complication 2
X	X	X	X	X	X	X	X	X	X	X	X	X	X
0 0	AP	M	0 0 10	W	G	0 0	10 0 0	10 0 0	0 0 0	0 0 0	0 0 0 0 0	OP	0 0 0 0 0
1 1	AM	Bk	1 1 1	B	H	1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1 1 1	AM	1 1 1 1 1
2 2	TR	B	2 2 2	M	W	2 2	2 2 2	2 2 2	2 2 2	2 2 2	2 2 2 2 2	FI	2 2 2 2 2
3 3		Q	3 3 3	O	C	3 3	3 3 3	3 3 3	3 3 3	3 3 3	3 3 3 3 3	AB	3 3 3 3 3
4 4		R	4 4 4		U	4 4	4 4 4	4 4 4	4 4 4	4 4 4	4 4 4 4 4	LA	4 4 4 4 4
5 5		O	5 5 5			5 10	5 5 13	5 5 1	5 5 1	5 5 5	5 5 5 5 5		5 5 5 5 5
6 6			6 6 6			6 11	6 6 14	6 6 2	6 6 2	6 6 6	6 6 6 6 6		6 6 6 6 6
7 7			7 7 7			7 12	7 7 15	7 7 3	7 7 3	7 7 7	7 7 7 7 7		7 7 7 7 7
8 8			8 8 8			8 13	8 8 16	8 8 4	8 8 4	8 8 8	8 8 8 8 8		8 8 8 8 8
9 9			9 9 9			9 14	9 9 17	9 9 5	9 9 5	9 9 9	9 9 9 9 9		9 9 9 9 9

of any standard classification by the large majority of hospitals moves but slowly, and even though, to date, some eighty hospitals throughout the United States are using the Bellevue Hospital system of nomenclature, the writer is convinced that it will be years before really serviceable morbidity hospital statistics will be available, unless some method like the one about to be described is introduced.

Some years ago the writer devised a system of bookkeeping for hospitals whereby it was thought various hospitals could be induced to record all their cases according to a uniform nomenclature. The plan was never carried out for several reasons, but chiefly because no satisfactory system of nomen-

clature was then available. Moreover, the difficulty of securing the enthusiastic cooperation of the medical staff of the various hospitals appeared to be an insuperable obstacle, and without such cooperation the plan seemed to be doomed to failure. Taking up the question anew, and guided by a study of methods employed in the Bureau of Records of the Department of Health, the writer has devised what he believes to be a simple, practicable method of preparing uniform morbidity statistics from different hospitals, *no matter what system of nomenclature is employed in such hospitals*. The great advantage of this last point is at once apparent. It makes possible the publication of comparable morbidity statistics from hospitals long before a uniform system of nomenclature has been adopted.

The basis of the system here proposed is the "Discharge Certificate," a form of report very similar to the ordinary death certificate. These discharge certificates would be supplied to all the cooperating hospitals, and for each patient discharged from a hospital, a discharge certificate, properly filled out and signed, would be sent by the hospital to a cen-

¹The Bellevue Hospital Nomenclature of Diseases and Conditions, with Rules for the Recording and Filing of Histories. Compiled by the Committee on Clinical Records, composed of Dr. Robert J. Carlisle, Dr. Warren Coleman, Dr. Thomas A. Smith, and Dr. Edmund L. Dow. Third Edition, 1911.

TABLE Xc—DISEASE C, SHOWING DISTRIBUTION BY AGE AND SEX AND NATIVITY.

United States																			
Russia																			
Ireland																			
Germany																			
Etc.																			

TABLE XIa—DISEASE A, SHOWING DISTRIBUTION BY AGE AND SEX, AND OCCUPATION.

Occupation	Under 1		1-2		2-3		3-4		4-5		Total under 5		5-9		10-14		15-19		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-69		70 and over		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
Give those most numerous and Total, all occupations																																							

TABLE XIb—DISEASE B, SHOWING DISTRIBUTION BY AGE AND SEX, AND OCCUPATION.

Give those most numerous and Total, all occupations																																								
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TABLE XIc—DISEASE C, SHOWING DISTRIBUTION BY AGE AND SEX, AND OCCUPATION.

Give those most numerous and Total, all occupations																																								
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TABLE XII—SHOWING THE COMMONER COMPLICATIONS OF CERTAIN PARTICULAR DISEASES.

Principal disease	Total, complicated and uncomplicated	Complications			
		Disease 27 ¹⁰	Disease 105 ⁶	Disease 63 ⁶	Disease 18 ²
Disease A					

The small figure to the right indicating the number of times the complication was observed.

In New York city, the number of cases treated each year in the various hospitals is enormous, Bellevue and Allied Hospitals alone treating in the neighborhood of 50,000 patients annually. The magnitude of the problem of tabulating the hospital statistics according to the plan just outlined is, therefore, considerable. At the same time, it is entirely feasible to begin the work on a small scale, taking, for example, half a dozen of the larger hospitals in addition to Bellevue and Allied Hospitals. This would, perhaps, represent from 100,000 to 150,000 patients annually; about double the number of cases now handled annually as death certificates in the Department of Health of the City of New York. At the end of a year, those making the tabulation would probably have become so trained that they could easily handle fifty per cent. more work. To anyone familiar with work of this kind, it is a matter of course that the tabulations must be made by machine. The cards here shown are based on the tabulating machine used in the Department of Health of the City of New York.

So far as the expense of the undertaking is concerned, this consists of two factors, namely, the preparation of tables similar to those exhibited above, and the publication of these tables together with their analysis. There is practically no additional expense whatever on the part of the participating hospitals. After the work had been organ-

ized and running for some time, the preparation of tables concerning 200,000 cases would probably not exceed \$12,000 per annum; and the printing of an annual report would probably be less than the present total cost of the individual hospital reports. Moreover, where the present individual hospital reports are almost worthless, a combined report such as here described would be of enormous value to all students of public health.

FORT WASHINGTON AVENUE AND 170TH STREET.

SUPRAPUBIC CYSTOSTOMY.

Its Indications in Carcinoma of the Prostate, with Illustrative Cases.

BY CHARLES GREENE CUMSTON, M. D.,
Boston.

The application of cystostomy in cancer of the prostate, quite as well as in all varieties of malignant neoplasms of the bladder and urethra, can arise under two very different circumstances. When the growth is still operable, cystostomy is done as a temporary palliative operation, and as permanently palliative when the neoplasm has attained the inoperable and therefore the incurable state.

The malignant affections of the prostate, representing the operable class (sarcoma, or more frequently carcinoma), are usually mistaken for simple prostatic hypertrophy, for the very simple reason that they offer the symptomatology of the latter process. The indications for suprapubic cystostomy are here quite the same as in instances of prostatism and is done for serious complications, such as acute retention, severe infection, intolerable pain, profuse hematuria, and a bad general condition which resists all other therapeutic measures. Under these circumstances the suprapubic drainage should be preferred to total perineal prostatectomy, as it will relieve the urgent symptoms and allow one at a later date to remove the diseased gland from above, should the condition of the patient warrant such a procedure.

CASE I. M., aged seventy-six years, had suffered for several years with urinary symptoms, apparently the result of a prostatic hypertrophy. For some time past he has used the catheter. About a week previous to coming under observation the patient made a false passage with the instrument. When seen he was suffering from complete retention, the bladder reaching to the umbilicus. Per rectum the prostate was enormous, irregular in contour, probably carcinomatous. No enlarged lymphnodes could be detected. Temperature 97.9° F. The passage of a catheter was difficult, but after a while the instrument was introduced.

On the next morning the bladder was again distended but a catheter was passed and the urine withdrawn was clear. Temperature 99.3° F. In the afternoon of the next day a severe hematuria occurred and the temperature was still up. The patient's general condition seemed less good, the infection appeared to be progressing, and the old man began to complain of rather serious digestive disturbances. Suprapubic cystostomy was done without further delay.

An improvement was rapidly manifest, so that ten days later the patient was discharged wearing an apparatus to collect the urine. He died eighteen months later with all the symptoms of malignant disease, but was made very comfortable by the operation.

CASE II. I. I., aged seventy-one years, had had an attack of retention a year ago, after having presented urinary disturbances previous to this, evidently of a prostatic nature. When seen, a catheter could not be introduced into the bladder, and futile essays were made with all types of instrument. Rectal examination revealed a very hard, irregular prostate of medium enlargement, not tender on pressure. A diagnosis of probable malignant disease was made. On account of the retention and the impossibility of entering the bladder with a catheter, suprapubic cystostomy was done. This was three months ago, and although the patient presents unmistakable evidence of a generalized malignant invasion he is in fairly good condition and is not troubled by any bladder symptoms.

CASE III. L. B., aged sixty-nine years, presented the ordinary symptoms of prostatic hypertrophy, these having been present for the past four years. For the last few months, the patient has been obliged to pass the catheter several times in twenty-four hours. During the past three weeks there had been complete retention, micturition taking place by overflow. There was much pain on going to stool.

When seen, rectal examination revealed an enormous prostate, very irregular and hard. Both the lower poles of the kidneys could be palpated. There was a cloudy polyuria, about four litres being voided in twenty-four hours. Straw yellow coloring of the integuments, no appetite, extreme thirst. Temperature 101.2° F. The patient stated that all these symptoms had appeared within ten days and had markedly progressed.

Every attempt to pass a catheter was fruitless and very painful, and it was evident that no time should be lost. Therefore, a suprapubic cystostomy was quickly done under local anesthesia. The bladder was found greatly dilated and in an advanced condition of sclerosis. The urine was very cloudy and strong in odor. The finger

introduced into the bladder could feel the median lobe as large as a walnut and completely obstructing the outlet of the bladder.

The operative result was excellent, so much so that the patient's general condition improved for a time, death taking place some four months later.

CASE IV. F. T., aged seventy-four years, had complained for six months of frequent desire to void urine. About six weeks ago there was an attack of hematuria for the first time, and for ten days the patient voided pure blood almost constantly, to such an extent that anemia was pronounced and the strength greatly reduced. There was severe infection, the tongue dry, temperature 101.7° F.

The passage of the catheter was essayed for three days without any marked result, at least as far as the hematuria was concerned, although some amelioration in the symptoms of infection was thought to be noticed. Therefore, suprapubic cystostomy was done.

The bladder contained at least two litres of sanguineous urine, mixed with much mucus. No clot, no calculi, no vesical ulceration or tumor. Felt from within the bladder, the prostate formed a hard plane under the urinary reservoir, although apparently quite circumscribed in extent.

Four weeks later the patient was discharged in very good condition considering the circumstances. The vesical hemorrhage had completely stopped, the temperature was normal, but, although the urine had cleared up, the general condition was poor on account of the progress made by the malignant cachexia. He lived in comparative comfort up to his death ten weeks later.

Suprapubic cystostomy is certainly the operation of choice when it is possible to do it, because it allows one to remove the carcinomatous prostate later on if conditions are suitable. At the present time the occurrence of prostatic cancer is well recognized and it should always be looked for in every case of supposed simple prostatic hypertrophy. When in the early stage, before serious symptoms have arisen, a radical operation can be done successfully, but in advanced cases palliative measures alone are indicated. For this reason total prostatectomy should follow suprapubic cystostomy as soon as the conditions admit, the suprapubic operation having been indicated by certain urgent symptoms resulting from the prostatic process.

But there is always a notable proportion of inoperable cases, in my experience about one out of three, where the growth has extended beyond its capsule and in which prostatectomy would be useless, if not disastrous. Here we are dealing with what Guyon called the *diffused type*, and besides not being able to remove the neoplasm completely there is always danger of fatal hemorrhage or a rapid extension taking place immediately after the attempt at removal. These instances are certainly of the *noli me tangere* class, and to them palliative operations alone belong.

Perineal section is now generally considered a bad operation because the route followed is in itself a poor one. It exposes the patient to serious operative hemorrhage, because one is obliged to go directly through the neoplasm in order to reach the bladder. It favors the development of inflammation of the growth and is the source of repeated irritation by the constant passage of the urine over it, from which arise increased activity, proliferation, and generalization. Then, too, micturition is no longer voluntary, continence returns with reappearance of all the serious symptoms. The only advantages it possesses is to combat the retention at the time and to disinfect the bladder, both of

which indications are fulfilled by the suprapubic operation.

Catheterization is often impossible, difficult, or very painful and usually does not control the symptoms for which it is done.

CASE V. G. H., aged sixty-nine years, was seen for the first time with a retention of urine which had lasted for two weeks, micturition taking place by overflow. Rectal examination revealed a large nodulated prostatic tumor adherent to the rectum and pelvic walls. On either side of the prostate there were hard infiltrations, immobilizing the prostate and rectum. Enlarged and hard inguinal lymphnodes could be detected.

The general condition was fairly good and the passage of the catheter, which was not difficult, withdrew a large amount of cloudy urine. The instrument caused considerable pain and irritated the urethra.

Suprapubic cystostomy was done, and when the bladder was entered an enormous prostate, surrounding the neck of the organ was found; no ulceration of the bladder. The operative results were good. The patient was seen for the last time two months after the operation, voiding the urine perfectly by the hypogastric meatus. The urine was quite clear. The patient expressed himself as perfectly satisfied with his condition. He died ten months after the operation.

CASE VI. G. G., an old sea captain, aged eighty-one years, had been troubled for a number of years with symptoms of prostatic hypertrophy. He was seen in his first attack of complete acute retention. The passage of the catheter was impossible.

Rectal examination revealed an enormous prostate with a very irregular surface, and enlarged hard lymphnodes could be distinctly felt in both iliac fossæ.

Suprapubic cystostomy was done with great relief to the patient, the progressive cachexia resulting in a death four months later, but during this time the patient was very comfortable and free from any suffering.

The impossibility of introducing the catheter or when it is difficult and painful, has been an indication for cystostomy and many are the cases recorded, for example, those of Southam, Guillemot, Leguen, Thompson, Desnos, Delore, and others too numerous to mention. What Leguen said years ago is quite true to-day, namely, that "with repeated catheterization the result is pain and hemorrhage; with the permanent catheter, also stubborn pain without any chance of an amelioration in the patient's condition."

In inoperable prostatic cancer suprapubic cystostomy is the only resource and should be done without delay if the operation is to be of any real and lasting benefit. This is also the opinion of Wenzel, Leguen, and Poncet, and in my opinion the bladder should be opened as soon as there is any disturbance in the flow of urine, because an early suprapubic cystostomy not only procures permanent relief, but in many cases the progress of the malignant disease is lessened by the favorable general effect of the operation. The same applies to the operation of colostomy in rectal carcinoma.

In some cases the life of the patient is undoubtedly prolonged. For example, Desnos reports a case where the patient survived the operation three years and a half, another two years and a half, while a third lived for over four years. Guillemot's patient lived fourteen months, Delore's patient lived in peace for eleven months, while two of my own (Cases I and V) lived quite happily for eighteen and ten months respectively.

I would also include in the subject of this paper cases of malignant disease of the rectum and other types of intrapelvic carcinoma, no matter what may

be its starting point, when the neoplasm has extended to, and involved either the prostate or bladder, when it sets up functional urinary disturbances or painful micturition. Such patients are in quite a similar condition to those of the anorectal type of prostatic cancer, with severe rectal pain and tenesmus accompanied by urinary disturbances.

Independently of the operations which are to be directed against the rectal disturbances, such as colostomy, the surgeon may be led to perform a suprapubic cystostomy more completely to relieve the patient of his sufferings.

In all cases of inoperable prostatic malignant disease, a temporary cystostomy will rarely be sufficient. The prostatic impediment, far from diminishing, rapidly increases, unceasingly augmenting the impermeability of the urethra, which is the primary cause of all the serious complications, so that, for this reason, the artificial suprapubic meatus must be so constructed as to remain permanent during the remainder of the patient's life.

871 BEACON STREET.

AN IMPROVED X RAY GENERATOR.

Discovery of a more powerful x ray generator producing an unfluctuating voltage and a quality of x ray which is safer and more effective.

By SINCLAIR TOUSEY, A. M., M. D.,

New York.

Consulting Surgeon, St. Bartholomew's Clinic.

The author's part in this important discovery consisted really in directing the attention of the inventor, Mr. Cabot, to the need for such an unfluctuating direct current of a potential which could be regulated from 10,000 volts to 100,000 volts or more. The story is a romantic one. Mr. Sewall Cabot and his partner, Mr. Joseph T. Shaw, are electrical engineers and inventors and manufacturers of high voltage electrical appliances, especially those used in wireless telegraphy. They were already seeking a means of producing direct unfluctuating high tension currents for commercial uses, especially in electrometallurgy. About three years ago they were asked by Doctor Williams, of Boston, to look into the subject of the x ray, and in pursuance of this they purchased the author's book (*Medical Electricity and Röntgen Rays*) and took it with them on their summer hunting and fishing trip in Nova Scotia. They lugged it over carries and read it by an acetylene lamp in the evening and eventually were rewarded by discovering three or four pages which suggested the present discovery. I said in my book that the induction coil, the static machine, and the step-up transformer with a high tension rectifier were all imperfect x ray generators, no matter how large and powerful they might be made. They sent through the x ray tube a series of impulses, the voltage of each of which varied a great deal; the cathode particles therefore traveled at many different velocities and this was the principal cause of the different wave lengths produced by an x ray tube excited by any of these generators. This mixed quality of the x radiation appeared danger-

ous and undesirable to the author. An x ray tube used for making a radiograph was giving out some rays which were of the right quality to penetrate the tissues to an extent dependent upon the density and produce a chemical effect upon a photographic plate which furnished a chart of the relative density of the portions transversed by the x rays. But, in addition to these proper and useful rays, there were at the same time many rays of such rapid vibration that they produced little contrast upon the photographic plate, passing through denser and less dense tissues about equally. These rays still produced an effect upon the photographic plate, but it was a blurring and undesirable effect. And they produced an effect upon the tissues which was undesirable because unnecessary. Generally speaking, every precaution should be taken to reduce the effect upon the tissues to a minimum in x ray examinations.

A third class of x rays produced by the previous generators were the rays of so little penetration that they were absorbed by the superficial tissues and could take little part in the production of a picture. They could only add to the effect upon the tissues and were more or less suppressed by the interposition of a screen of sole leather or aluminum.

A fourth class of x rays was of extreme penetration and passed through the photographic plate without much chemical effect, but it did not follow that they were without effect upon the tissues.

The same disadvantages were present when it came to x ray treatment with a source of x rays of mixed wave length.

The advantages to be gained by the use of a generator of unfluctuating voltage and by x rays of approximately homogeneous wave length, lie in the production of a quality of radiation suited to the purpose in hand practically free from other wave lengths, which can take no useful part, but which may be a great detriment.

Better and safer examinations and more effective treatment of deep seated or of surface lesions are the result.

The apparatus installed for the author is capable of delivering sixteen kilowatts or any smaller amount of electrical energy at the terminals of the x ray tube, and the voltage is subject to exact regulation and is constant.¹ Radiographs may be made in a small fraction of a second or the apparatus may be adjusted by a fluoroscopic attachment in such a way that a radiation, mild but still of the necessary penetration for fluoroscopic examinations or for treatment, may be applied for a long time.

850 SEVENTH AVENUE.

EXTRACT OF THE SUPRARENAL GLANDS.

Its Therapeutical Uses.

By JOHN AIKMAN, M. D.,
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Extracts of the suprarenal glands have such a wide use to-day, that it is surprising to note that

¹This is the third apparatus of this type to be made. Others are in use at the Massachusetts General Hospital and at Dr. Walter Dodd's office in Boston. Other manufacturers are constructing apparatus upon the same principle but I have not yet had an opportunity to test them.

they were put on the market but a little over ten years ago.

HISTORY.

The first investigations of value in regard to the ductless gland therapy were reported by Brown-Séquard, and, in 1856, he discovered that removal of the suprarenal capsules would cause death in either man or the lower animals. In 1895, Oliver and Schaefer found that these glands produced a peculiar substance which had a marked action on the circulation. After this, various reports were made on the use of aqueous extracts of the glands, showing that they had a valuable therapeutic action. The greatest advance occurred in 1897, when Abel, of Johns Hopkins University, announced that he had discovered "the blood raising constituent of the suprarenal gland." In 1898 and 1899, Abel published reports of further experiments and gave more light to the chemistry of the substance he had discovered, calling it epinephrine. Reports were also made by V. Furth, in 1899, and he applied the name of suprenine.

Two years later, Takamine announced the discovery of the active principle of the gland, asserting that it was not the same as epinephrine and suprenine.

Whether or not the substances discovered by the different workers are the same, it is not the object of this paper to decide. It is interesting to note, however, that Cushny gives the credit to Abel and speaks of epinephrine and Takamine's product as the same.

The extract is chiefly used to-day in a solution of one part crystalline extract to 1,000 parts of normal salt solution. The same drug can be made synthetically. Thus prepared it has but one half the strength of the natural product, according to Coleman.

The solution of the extract, as it is sold to-day, can be boiled without destroying its activity. It is also put up in other forms; ointments, tablets, triturates, inhalants, suppositories, etc. The dry powdered gland should be mentioned, as it is of great value in certain conditions.

The suprarenal capsules belong to the class of ductless glands, and are situated in the back part of the abdomen immediately above the upper end of each kidney. Our knowledge of these capsules is chiefly confined to certain activities of the medullary portion; of the cortex we know practically nothing.

PHYSIOLOGY.

The glands produce an internal secretion of which the function seems to be to control blood pressure and maintain the tone of the bloodvessels, because, when the glands are removed symptoms of loss of vascular tone and a great fall in the blood pressure follow, as in Addison's disease. The most active principle of the internal secretion probably is epinephrine, and it is found in the blood flowing from the gland. Still it does not represent the entire function of the organ because it fails to cure many cases of Addison's disease and many times makes the condition worse.

Since Addison's disease is due to a partial or complete destruction of the suprarenal capsules, the extract, if it represented the whole function of the

gland, should give as satisfactory results as thyroid extract does in myxedema. Up to the present time no other principle has been discovered.

PHYSIOLOGICAL ACTION.

Applied locally, suprarenal extract produces no action on the intact skin, but causes a constriction of the arterioles and blanching if applied to the mucous membranes. In the mouth there is local action on the membranes, and some assert there is absorption from the mouth and tongue, especially when the dried gland is masticated and held in the mouth for a short time. How much action it would have if given by the stomach is a question. There would be a local action, but probably no systemic effect, because Bates reports a case where "two pounds of the fresh suprarenal capsule in the form of an aqueous extract" were swallowed without any apparent ill effects. Hare says that there is probably some action in the stomach, but there is little physiological proof. It is also stated that twenty times the toxic dose by intramuscular injection is inactive by the mouth. This would substantiate the assertion that the extract is destroyed by the gastric juices. Musser and Kelly hold that given by the rectum, it will be absorbed.

On subcutaneous injection the arterioles are at once constricted and absorption of the drug takes place very slowly. When given into the muscle, which, by the way, seems to be the best method of administration, the systemic effect occurs much more rapidly. It is also given by intravenous infusion in the strength of one to 50,000, or one to 100,000, especially in cases of surgical shock, as advocated by Crile.

Given internally, the extract has no action on the central nervous system except in poisonous doses. In the eye, applied locally, it causes dilatation of the pupil, decreased intraocular pressure, and constriction of the bloodvessels. Its action on the general circulation is most interesting. Given by intramuscular injection or intravenous infusion, epinephrine causes a distinct rise in blood pressure and a slowing of the pulse. The action passes in a few minutes, although it can be demonstrated in the circulating blood for a much longer time. No satisfactory explanation for this latter fact has been given. The increase in blood pressure is due to a direct stimulation of the endings of the vasomotor nerves in the muscles of the arterioles, also to a direct action on the heart similar to that of digitalis, but to a lesser degree. There is a stimulation of the accelerative fibres of the heart, causing slowing in rate, increased efficiency, and more complete evacuation of the heart chambers. Then follows an increase in pulse rate. The vasoconstriction action is noticed chiefly in the splanchnic area, which receives its sympathetic nerve supply from the spinal cord at the lumbar and dorsal regions. The degree of constriction varies with the amount of control normally exercised by the constrictor nerves in any particular region. So vessels in the uterus are more constricted than those of the bladder and of striated muscle. It is most important to note that the arteries of the brain, lungs, and heart are not affected by suprarenal extract because they are not under control of the vasomotor system. It is possible

that the pressure here may be effected indirectly by the action on other vessels of the body. The vasodilator fibres of the arteries are stimulated, but to a lesser degree.

TOXIC EFFECTS.

Although epinephrine is a very valuable preparation and has a wide use, it is not without toxic effects. These we shall outline briefly. Some individuals show a marked idiosyncrasy to even small doses. Wiggins advises against placing reliance on definite doses because of the varying susceptibility. Thirty minims have caused shock; when we speak of minims we refer to the one to 1,000 solution. Shock has followed the injection of ten minims into the urethra. The writer has seen one such case and had his attention drawn to a case where urethral injection for hemorrhage was followed by sudden death. The amount used in this last case is not known. Thirty minims by intramuscular administration have been followed by failure of respiration and cyanosis, making artificial respiration necessary. Atheroma of the aorta has occurred in rabbits after repeated injections over a long period of time, but this has not been shown to occur in man.

Locally, the extract may promote infection, especially in the nose. The solution is an excellent culture medium for bacteria, and quite severe infections have followed the use of contaminated preparations. It may retard healing or cause sloughing and gangrene, especially in elderly or poorly nourished individuals. This is more apt to occur when the extract is used with cocaine. The unpleasant after effects, especially in nose operations, is secondary hemorrhage. Persistent turgescence of the mucous membranes follows often when epinephrine is used in hay fever. Pigmentation of the skin may occur from continued medication.

THERAPEUTIC ACTION.

The most important local use is for control of hemorrhage in minor injuries and operations. This action is due, obviously, to its constricting action on the arterioles. It may be applied on a pledget of gauze or cotton, or, if the hemorrhage is from the nose, the nasal cavity may be packed with gauze soaked in the extract. It must be remembered that a dilatation of the arterioles may occur later, after the effect has passed off. Many times, the extract in solution will seem to have no effect and then the dry powdered suprarenal gland applied locally is of value. This local action may be obtained in gastric hemorrhage, especially if due to gastric ulcer. Forchheimer advises a gastric lavage with 1.5 c. c. in 250 to 500 c. c. of water. It is of doubtful value in intestinal hemorrhage, but in the lower bowel and rectum good results may be obtained by rectal infusions. Suppositories are of value in hemorrhoidal hemorrhage. The extract has been used with success in uterine hemorrhage, and post partum hemorrhages have yielded to this treatment. In hemorrhages from the urinary bladder and urethra, local applications of the drug give good results. For uterine hemorrhage the uterus may be packed with gauze soaked in from one to 2,000 to one to 5,000 solution.

It is well to emphasize here the fact "that in

order to have the hemostatic action, the extract must be applied locally." Hypodermic injections will, by increasing the blood pressure, increase the hemorrhage. By local applications one secures the constriction without an increase in general blood pressure. While we are considering hemorrhage it might be well to speak of two other types of cases in which suprarenal extract is contraindicated, but for which conditions it is frequently used, namely, pulmonary hemorrhage and cerebral hemorrhage. We have learned that it does not cause a constriction of the pulmonary and cerebral vessels, owing to the fact that these vessels have no vasomotor control. The extract will not act as a hemostatic unless applied locally, and in these two cases its use would be attended with danger because of an increase in the general blood pressure, which would augment rather than retard the escape of blood in these regions. It has been advised by many writers, especially if used in frequently repeated doses; but in view of the physiological activities of the drug, it is difficult to defend such therapy.

The use of epinephrine combined with cocaine for local anesthesia is well known and is based on the facts that it blanches the operative field and prolongs the action of the anesthetic. The dangers of secondary hemorrhage, gangrene, and sloughing should be remembered. Another local use is for the reduction of congestion in mucous membranes of the nose and throat, both to reduce inflammation and to aid in examinations. It is also used to reduce swellings and edema of mucous membranes. It is of value in many conditions of the eye, ear, nose, and throat; but those will not be discussed, as they are out of our field.

Internally, probably the greatest use of suprarenal extract is in bronchial asthma. In order to get the beneficial action we must be sure that the asthma is not of the renal or the cardiac types, because in these conditions it is of doubtful value. As one writer has said, the effects "are truly marvelous in relaxing the spasm of the asthma instantly." The good results are obtained only by hypodermic injections, preferably into the muscle, the dose being from fifteen to twenty minims. We frequently hear complaints that it has failed to act. In such cases, inquiry as to the method of administration and type of asthma will almost invariably explain the failure. An interesting explanation for this action in spasmodic asthma is given by Melland in the *Lancet* for May 21, 1910. Briefly outlined, it is this. The vessels of the mucous membranes are supplied by the bronchial arteries of the ordinary systematic type and under vasomotor control. The circular muscles of the bronchi have the vagus as their motor nerve. The writer holds that all vagus supplied muscles are relaxed by suprarenal extract. Since bronchial asthma is generally acknowledged to be caused by a spasm of the bronchial muscles, also by swelling and congestion of the bronchial mucous membranes, the action of the drug is easily explained, provided Melland's statements are correct. Whatever the explanation, it is a fact that the extract gives instant and complete relief in most cases of true bronchial asthma, such as is seen under no other medication. It is not a cure, and the attacks may recur, but for temporary relief it is

most valuable. In some cases it seems to remove the cause, and, in one case recalled by the writer, no attacks have occurred for two years, while previous to that time severe attacks occurred every few weeks. It gives relief for one half to three quarters of an hour and sometimes for three to four hours.

While considering asthmatic conditions, it is well to mention hay fever or autumnal catarrh, which is so frequently associated with the former condition. For this, Hare advises the use of suprarenal extract in the form of a spray, locally applied, with normal salt solution, stating that it is better when used together with cocaine. Others prefer to omit cocaine entirely and use the extract alone, because of the likelihood of producing a cocaine habit in long continued cases. The extract is stated to relieve asthma also when sprayed into the nose and throat in the strength of one to 20,000 or one to 10,000 solution.

The use of suprarenal extract in cardiac conditions is a much mooted question and requires the best judgment. One should be guided by the blood pressure, and even then it is difficult to select cases in which it will be of value.

In pulmonary edema due to loss of vascular tone it shows, sometimes, wonderful results; but if the chief cause of the edema is cardiac failure, other stimulants are of greater value. If cases can be selected, very good results are frequently obtained. In certain types of Graves's disease, epinephrine may be used as a cardiac tonic.

In cases of shock it is recognized as being the only drug of real value, and according to Crile the best results are obtained by giving it in an intravenous infusion; the strength of the solutions being from one to 50,000 to one to 100,000. This infusion may be continued until good results are obtained, but during the operation careful observations should be made of the pulse and blood pressure. The administration is justified if the symptoms point to the heart not having enough blood to work against.

When suprarenal extract was first discovered it was hoped that it would give as good results in Addison's disease as thyroid extract does in myxedema, but such has not been the case. A small percentage of cures has been reported. Kennicutt collected forty-six cases; of these, six were cured and twenty-two improved. As good an observer as Forchheimer found it of no value in this condition. It should be tried, however, and must be given in small doses by hypodermic injection, frequently repeated. Some of the good results reported were obtained when the drug was administered by the mouth in the form of the dry extract.

The above mentioned uses are the most important; but in looking over the literature one finds that the agent has been used in nearly every diseased condition. Many of these observations have been proved erroneous; but there are still several conditions to be mentioned in which it gives favorable results.

In children it gives relief in the paroxysms of whooping cough, and it has been used with satisfactory results in spasmodic croup.

In several instances the extract has been used in snake bites, and it can be seen how it would be of value, both by delaying the absorption of the venom

and by acting as a cardiac and vascular tonic. Some have found it of value in Graves's disease, hemophilia, and purpura.

Briefly to summarize a few important points:

1. Constitutional effects are obtained only by hypodermic injections or intravenous infusions.
2. The hemostatic effect is obtained only by local applications of the drug.
3. Given by the mouth, suprarenal extract has little or no action aside from the local effects.
4. It should not be used in the treatment of pulmonary or cerebral hemorrhages.
5. Failures in the treatment of bronchial asthma are generally due to faulty diagnosis or improper administration of the drug.

880 MONROE AVENUE.

CHRONIC SEMINAL VESICULITIS.

A Clinical Résumé, with Special Reference to the Urethroscopic Findings in the Posterior Urethra.

(From the Genitourinary Clinics of the Mount Sinai and Post-Graduate Hospitals.)

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A review of the literature of the past decade shows an extreme paucity of information concerning the urethroscopic findings in the posterior urethra in chronic seminal vesiculitis. In part this has been due to unsatisfactory instruments for examining the posterior urethra; since Goldschmidt (1) first introduced irrigation urethroscopy, in 1907, our knowledge of the pathology of this region has greatly increased.

Although seminal vesiculitis was first described by Morgagni, in 1745, the frequency of this condition is even at the present day greatly underestimated, and statistics as to its occurrence vary considerably. Chute (2), in 1901, reviewing a series of 540 cases of gonorrhea, found the vesicles involved in sixty cases; Mayer-Worms (3), in a later publication, demonstrated vesiculitis in sixty per cent. of the cases of posterior urethritis. Petersen (4), in a series of 200 cases of gonorrhea, found vesiculitis present in four per cent.; while Feleki (5), in the compilation of a year's statistics, encountered this complication in 2.3 per cent. The statistics of Lewin and Baum (6) are very interesting and highly instructive. The authors examined 1,000 cases of gonorrhea, and found the posterior urethra involved 629 times—sixty-three per cent. The frequency of spermatoecystitis in this series can be seen from the following table:

Uncomplicated prostatitis.	Uncomplicated certain.	Spermato-cystitis probable.	Prostatitis and spermato-cystitis.	Prostate and vesicles negative.	Prostate and vesicles normal.
385 61%	31 5%	7 1%	180 29%	10 2%	16 2%
35%					

Of these 218 cases of vesiculitis, sixty-four per cent. were bilateral, and thirty-six per cent. unilateral. A summary of the literature shows that

the seminal vesicles are involved in from forty per cent. to sixty per cent. of the cases of chronic posterior gonorrhea; when complicated by epididymitis the figures are even higher. The frequency of non-gonorrheal vesiculitis is hard to determine, as the reports on this subject are very meagre.

ETIOLOGY.

Two types of spermatoecystitis are generally described; the bacterial and the catarrhal. The bacterial is by far the more frequent and is most often gonococcal in origin. Among other organisms found in vesiculitis may be mentioned the pneumococcus, streptococcus, staphylococcus, *Bacillus coli communis*, and tubercle bacillus.

Lloyd (7) and Fuller (8) were among the first to call attention to the catarrhal type of vesiculitis. According to Wiltse, catarrhal vesiculitis is seen without any ascertainable etiological factor. The author found this condition in healthy men who had led a regular, continent life, and who were free from venereal infection. These patients, however, were under a rather high nervous tension. Sexual excess, masturbation, and coitus interruptus are mentioned as etiological factors. The effects of alcohol and tobacco are as yet undetermined. In this connection it may be interesting to note that bicycle riding is also mentioned by some authors as a causative agent of the catarrhal type of vesiculitis.

SYMPTOMATOLOGY.

The symptomatology of seminal vesiculitis is very complex; many of the symptoms simulate those of other conditions, especially posterior urethritis, cystitis, colliculitis, and prostatitis; and unless a careful rectal examination is made this condition will often be overlooked. The symptoms as described by Wiltse (9) are grouped under three heads: First, those referable to inflammation in general; second, those referable to the sexual sphere; and, third, those affecting the urinary function.

Under the first head we find that pain is a rather constant symptom, and varies considerably in severity. There may be but a sense of discomfort or uneasiness or a pressure sensation in the perineum. Often the pain radiates from the suprapubic region, down the spermatic cords, into the testes and glans penis. Pain in the back is a frequent manifestation. A real vesicular colic, beginning in the deep urethra and radiating down toward the anus and glans penis, has also been described. The attacks of colic generally take place at the end of coitus, and are said to be due to mechanical obstruction of the ejaculatory ducts by fibrinous sagolike masses. The close association between general rheumatic pains and seminal vesiculitis has been fully described by Fuller (10). Under sexual symptoms may be noted erections and erotism in the earlier stages, with frequent pollutions, which are apt to be blood stained. As the condition progresses the sexual powers decline, ejaculation becomes premature, and erections become weak and finally fail. Even where the sexual power remains strong, impotence generandi may be present as a result of obliteration of the ejaculatory ducts (Barnett) (11). Noble (12) and Picker (13) were the first to call attention to the fact that recurrent attacks of epididymitis are

generally due to disease of the ampulla of the vas deferens. Closely associated with these sexual disorders are numerous mental and nervous symptoms which vary considerably in degree. Among the urinary symptoms may be mentioned a burning sensation at the vesical neck, increased frequency, and attacks of vesical tenesmus. Chronic urethral discharge is a rather frequent symptom. Voelcker (14) gives as characteristic of vesiculitis the following symptom complex: Chronic or recurrent urethral discharge, bladder irritability, and rheumatic manifestations.

DIAGNOSIS.

The diagnosis of spermato cystitis is in great measure dependent upon rectal palpation supplemented by microscopical examination of the contents of the vesicles obtained by massage. In this respect it is important to note that the normal vesicles are palpable in about seventy per cent. of all cases. In palpating the vesicles, one should determine chiefly their size and consistence. As regard size and consistence the cases can generally be classified under one of two types, spermato cystitis catarrhalis and spermato cystitis fibrosa. In the former the vesicles are moderately or greatly distended; on this fact alone, however, the diagnosis of vesiculitis cannot be made, for distention, even though of considerable degree, is by no means of pathological significance, for the capacity of the vesicles varies considerably within normal limits. According to Picker this variation is from 1.5 to two c. c. In the fibrous type the vesicles have a hard feeling, and are often irregular in outline; again, they may be so atrophied that they fuse into the circumvesical tissues and cannot be palpated. At times they can be made out as two hard cord-like masses. Tenderness, while a valuable symptom in the acute cases, cannot be relied upon in the chronic cases as an indication of the changes the vesicles have undergone, for the reason that the normal sensitiveness of this region varies considerably in different individuals. It is of interest to note that the urethroscopic appearance of the colliculus often coincides with the results of rectal palpation, i. e., in the fibrous vesicles the colliculus is frequently found atrophic, hard, and grayish white in color, whereas in the catarrhal type a hypertrophied or congested caput is generally seen. A positive diagnosis of spermato cystitis really depends upon the results of microscopical examinations of the secretion from the vesicles. In order to obtain the contents of the vesicles uncontaminated by the urethral and prostatic secretion, we have found the method of Cabot (15) practical, and at the same time accurate. The technic is as follows: The urethra and bladder are first flushed with a mild antiseptic solution, so as to remove any contamination from these sources. The bladder is then distended with the solution and the prostate is massaged; the solution voided contains the prostatic secretion. The bladder is again filled, this time preferably with saline solution, and the vesicles are massaged. The discharge which appears at the meatus and that which flows back into the bladder should be collected for examination. Lewin and Bohem, from their investigations, give the follow-

ing results of the microscopical examinations of the vesical contents in spermato cystitis: Leucocytes were found in all cases, gonococci in fourteen per cent., live spermatozoa in twenty per cent., and dead spermatozoa in eleven per cent.

In our series of 100 cases of chronic seminal vesiculitis, we found gonorrhea to be the most frequent etiological factor; a few cases, however, in which gonorrheal infection could be excluded were encountered. Gonococci were demonstrated in but a small percentage of the cases. Urethroscopically the nonspecific cases cannot be differentiated from the specific.

PATHOLOGICAL FINDINGS VIEWED BY THE URETHROSCOPE.¹

Before beginning a study of the pathological urethra it is important to bear in mind the various landmarks of the normal urethra, for an excellent description of which we refer to the papers of Goldschmidt (16), Wossidlo (17), Lohenstein (18), and Buerger (19). In making a routine examination of the posterior urethra it is expedient to follow some systematic scheme of examination; by so doing the possibility of overlooking important lesions is considerably minimized. Our method of procedure is as follows: The sphincter, with its superior, inferior, and lateral margins, is first examined; the instrument is then slightly withdrawn and the supramontane portion (Buerger) inspected, note being made of the condition of the posterior frenula; the colliculus, the most important landmark in the posterior urethra, is then brought into view, and the sinus prostaticus, ejaculatory ducts, lateral sulci, prostatic ducts, and membranous urethra are carefully inspected.

Vesical sphincter. Whereas in prostatitis the sphincter generally showed definite changes in form and color, it was especially noted that in vesiculitis the large majority of the cases showed nothing pathological in the sphincteric region. In a few of the cases characterized by marked distention of the vesicles, the normal configuration of the sphincteric margin was destroyed, and in place of a smooth, slight concavity an irregular border presented itself. In three cases following the operation of seminal vesiculotomy by Doctor Fuller this irregularity of the sphincter was found to be rather marked; involving both the lateral and upper margins. In two cases small papillomata were found at the lateral sphincteric margin, while in one patient two small cysts were seen.

Posterior frenula. We observed a rather marked hypertrophy of the posterior frenula in a number of instances. The mucous membrane covering these frenula, and that of the rest of the posterior urethra in most of the cases showed rather marked changes. These were in no wise, however, characteristic of seminal vesiculitis, because similar lesions were often seen in chronic posterior urethritis not complicated by vesiculitis.

The colliculus. This structure seems to bear the brunt of most of the changes in the posterior urethra in seminal vesiculitis, and shows pathological variations in the large majority of cases. It is nec-

¹In our examinations we have employed the irrigating urethroscopes of Goldschmidt, Wossidlo, and Buerger.

essary to bear in mind the fact that the size and shape of the normal colliculus varies considerably, and one must be guarded in pronouncing a colliculus to be pathological from these data alone. In general, two types can be differentiated, although any number of variations are found between the two. In the old sclerotic vesicles the colliculus at times was found to be normal in form and color; more often, however, the surface was very irregular and covered with knoblike excrescences, giving it a bosselated appearance. At times the colliculus seemed much smaller than the normal and of very firm consistence. The color of this type of colliculus is very characteristic, for instead of a pale yellow red the surface assumes a pearly white appearance. Even under the irritation of the instrument itself and the irrigation fluid this color varies but slightly, and bleeding is but rarely seen. This type of caput often showed an enlarged utricle with irregular borders. The small atrophic colliculus, irregular and gray in color, was generally found associated with a characteristic symptom complex; pain at the end of urination, cold sensations in the glans, pain in the back, diminished potency, and in general the symptoms of sexual neurasthenia. Dreyer (20), in a recent publication on urethroscopy, called particular attention to this fact. In the other type the colliculus was found to be considerably enlarged, often to twice and three times the normal size, with a smooth surface, very much congested, and covered with small red and white spots, giving it the appearance of a raspberry. Such a colliculus stands out prominently from the surrounding paler mucosa and bleeds readily under the slightest manipulation. In one case there was seen dipping down into the sinus pularis a large cyst. On incision this cyst disappeared with its accompanying symptoms.

Ejaculatory ducts. The appearance of the openings of these ducts varied considerably. Where the caput was very much enlarged and congested, the ducts were at times not visible; more often, however, a small area immediately surrounding the openings of the ducts was considerably congested, thus affording a good guide to their location. In the small sclerotic type of caput the ducts were practically always visible, at times with large and gaping orifices, owing no doubt to infiltration of the walls which rendered them rigid. Where but one vesicle was affected the duct on the corresponding side almost always showed pathological changes, whereas the other duct was either normal or but slightly changed. Very infrequently pus could be seen exuding from the diseased duct; on massaging the vesicle this could be more readily demonstrated. Regarding the appearance of the posterior urethra after appropriate treatment had been instituted for some time, it was noticed that in the picture generally found associated with the fibrous vesicles but little change urethroscopically took place; the atrophic grayish white caput remained practically unchanged. Marked changes following the local applications of silver nitrate and iodine could be demonstrated in the other type; the colliculus became smaller, the congestion less marked, so that the color of the mucous membrane approached almost the normal. It is of interest to

note that there is but slight apparent relationship between the symptomatology and the pathological findings; where marked lesions were present the complaints were often but mild in character and vice versa.

CONCLUSIONS.

As a result of a large number of urethroscopic examinations we were led to the conclusion that from the urethroscopic examinations alone it is not possible in the majority of cases to diagnose accurately the condition of the seminal vesicles. The appearance of the openings of the prostatic and ejaculatory ducts gives us some idea, however, as to the organ involved. In prostatitis the prostatic ducts generally show evidences of disease, while in vesiculitis the lesions are found in the region of the ejaculatory ducts. As pathognomonic of vesiculitis may be mentioned the oozing of pus from one or both ejaculatory ducts; this latter condition is rarely seen. With the possible exception of this characteristic picture the lesions presented by the colliculus cannot be taken as a criterion of the condition of the annexa, for similar lesions are often seen in uncomplicated posterior chronic gonorrhea, and even in cases of irritative urethritis due to masturbation or excessive coitus.

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40 EAST FORTY-FIRST STREET.

212 EAST FIFTEENTH STREET.

NEWER TEACHINGS OF DISEASES OF GASTROINTESTINAL CANAL.

By MARK I. KNAPP, M. D., LL.M.,

New York,

VIII.

EXAMINATION OF CHYME.

For the quantitative analysis,¹ the chyme should first be filtered. In the execution of the analysis we need a decinormal solution of sodium hydrate, a buret, usually of 100 c. c. capacity, divided into one tenth of a c. c., filtered chyme, a pipette of five or

¹See JOURNAL, March 1, 1913, p. 437.

ten c. c. capacity, and the indicator. What we determine is the number of c. c. of the decinormal sodium hydrate solution, which is required to neutralize 100 c. c. of chyme. And, accordingly, we speak of a chyme of an acidity of forty, if 100 c. c. of that chyme require for its complete neutralization forty c. c. of the decinormal solution sodium hydrate. So we speak of an acidity of sixty, if 100 c. c. of such chyme requires the addition for complete neutralization sixty c. c. of the caustic soda. And an acidity of ten means that 100 c. c. of the chyme require ten c. c. of the soda solution for the complete neutralization of the chyme. The pipettes, which I use for the aspiration of the filtered chyme, have a bulb blown out near the mouth end. The object of this is to prevent the chyme getting into the mouth of the examiner, should the aspiration be a little too forceful. The normal acidity of the chyme lies between forty and sixty, that is 100 c. c. of a normal chyme requires of from forty to sixty c. c. of the decinormal sodium hydrate to become neutral. The normal quantity of free hydrochloric acid has been set at between twenty and forty. This is rather questionable in the light of my discovery of the synchronous presence of free hydrochloric acid with free organic acids. My researches on organic acids were made after the normal acidities had been established, at a time when the presence of organic acids in the chyme together with free hydrochloric acid had been either denied or only the copresence of an inconsequential quantity thereof had been conceded. We do not use 100 c. c. of the filtered chyme for analysis, for the reason that we cannot always get such a quantity (which would be pathological) and second, it would require too much of the caustic soda for neutralization. We use only five or ten c. c. of the filtered chyme. Therefore, as we use only a tenth part, if ten c. c. are used, and only a twentieth part of 100 c. c. of the chyme, if five c. c. are used, we multiply respectively by ten or twenty the number of c. c. of the sodium hydrate, which we have consumed in the neutralization of the ten or the five c. c. of the chyme. Assuming we have used ten c. c. of chyme and it required 6.7 c. c. of the decinormal sodium hydrate for the complete neutralization of this chyme, we calculate the acidity of this chyme by multiplying 6.7 by ten, which would give the result as sixty-seven, and we say then that the acidity of the chyme in question is sixty-seven. Assuming, however, we have used only five c. c. of the chyme for the quantitative determination of the acids, and that we have used 2.9 of the caustic soda, we then multiply 2.9 by twenty and the result in this instance will be that the chyme has an acidity of fifty-eight.

Having measured off with the pipette of ten c. c. capacity ten c. c. of the chyme we first determine the presence and the quantity of free hydrochloric acid. For this purpose two drops of the tropeolin 00 solution is added to the chyme, when, in the presence of free hydrochloric acid the characteristic color reaction takes place. The beaker, which contains the chyme, is held with the left hand under the buret, and with the right hand the flow of the decinormal sodium hydrate solution from the buret is regulated. This procedure is called titration. The titration is continued until the end reaction of the

tropeolin is reached, that is until the chyme has turned a clear, transparent amber color. This is the first titration. We now add into the beaker two drops of Töpfer's solution. In the presence of organic acids the amber colored chyme turns a carmin red, its intensity varying with the quantity of the organic acids present in the chyme. The titration with the sodium hydrate is now resumed and continued until the end reaction of the dimethyl (Töpfer's solution) is reached, which is, that the chyme turns a lemon yellow color. This is the second titration. We now add two drops of phenolphthalein into the same chyme and again resume the titration, until the chyme turns the characteristic color, a beautiful carmin red. During all the titrations, the beaker must be constantly shaken. The first titration gives the quantity of free hydrochloric acid, the second titration the quantity of the organic acids, and the third titration the quantity of all the acids. Let us assume that we use five c. c. of the filtered chyme, and that at the beginning of the titration the buret reads 10.9, and that at the end of the first titration the buret reads 11.8, at the end of the second titration the reading of the buret is 13.3, and at the end of the third titration the buret reads 14.4. We now remember that we employed only five c. c. or a twentieth part of 100 c. c., and therefore our buret readings will have to be multiplied by twenty. In the first titration we used up 0.9 c. c. of the sodium hydrate, which multiplied by twenty gives eighteen, and therefore we say that there are eighteen free hydrochloric acid. In the second titration we figure the buret reading from where we stopped last, that is from 11.8 until we reached the end of the second titration, the buret indicating 13.3. We have therefore consumed 1.5 of the soda for this titration, which multiplied by twenty gives thirty. We now say we have thirty organic acids. For the third titration we calculate from the reading of the buret before the first titration was begun, that is from 10.9 until the end of the third titration when the buret reading was 14.4. As the difference between 10.9 and 14.4 is 3.5, we multiply 3.5 by twenty, which gives seventy as the result; the general acidity of this chyme specimen is therefore seventy. Comprehensively we speak that this chyme has free hydrochloric acid eighteen, organic acids thirty and general acidity seventy. I believe, that in the discussion hereinbefore stated at quite some length, I have sufficiently proved that the dimethyl can safely be used as an indicator for the organic acids. If in this titration we used dimethyl alone instead of tropeolin and dimethyl, the buret would indicate at the end of the dimethyl titration, which would have begun at 10.9 and ended at 13.3, that 2.4 of the caustic soda have been consumed, which would mean that the free acids amounted to forty-eight and which, very fallaciously, would be interpreted as meaning free hydrochloric acid by those who still cling to the dimethyl as the indicator for free hydrochloric acid. Instead, we see that there were only eighteen free hydrochloric acid and the rest, thirty, were organic acids. What a difference that makes in our conception of the clinical picture! According to my method, which is the true method, the patient suffers from organacidia gastrica, really a *hypochlorhydria* and, according to

the others the patient suffers from *hyperchlorhydria*. Under my treatment the patient requires mineral acids and under the other method the patient would be given alkalies. And, as under the alkalies the patient would get worse, the physician at once stamps the patient as "nervous or hysterical." What a fallacy!

The presence of the organic acids is to be proved also by a different method, the floating method which I devised in 1902. This method is based upon the fact that the organic acids, usually found in the stomach, are extracted by ether. The ether extract is then floated upon a weak solution of ferric chloride. At the plane of contact of the ether extract with the iron solution a colored ring appears. The color of the rings varies with the different acids. In my experiments I have used one drop of a ten per cent. solution of ferric chloride to two c. c. of distilled water in a narrow test tube (one c. c. diameter), upon which was floated the ether extract of the acid solution. The ether extract was made by putting one c. c. of the acid solution into a Strauss's separatory funnel, adding to it four c. c. of ether, shaking it well, letting it rest for a little while until the ether separated from the watery solution beneath, then allowing the lower, watery part to escape, by opening the stopcock, and then float the clear ether extract upon the iron solution. The following acids were used in the experiments: Acetic, butyric, citric, formic, lactic, malic, propionic, succinic, oxalic, and tartaric. Of these the malic, lactic, oxalic, and tartaric gave a sulphur yellow ring. Propionic and succinic acids gave a dark jasper red ring. To distinguish the several acids, which give a sulphur yellow ring, from the lactic acid, all we have to do is to dilute the solution to be tested. Diluted to an acidity of forty the sulphur yellow ring of malic, oxalic, and tartaric acid became faint and, at an acidity of twenty-six the malic acid extract failed to give the sulphur yellow ring. But the lactic acid gives the characteristic reaction with as low an acidity as ten and even with an acidity of five, if the test tube is corked up so as to prevent the evaporation of the ether and allowed to stand for a while undisturbed. The acid phosphates of calcium (acidity eighty), magnesium (acidity 100), sodium (acidity forty), and potassium (acidity fifty-five) gave no sulphur yellow rings. Neither did the mineral acids respond to this test.

Some differentiation can be made between tartaric and lactic acids. If we look at the test tube with the light in front of us, the ring of tartaric acid appears opaque and seems to shade into Nile green and, when looking with the back turned to the light and a white sheet of paper is held behind the test tube the color of the ring appears a sulphur yellow. In lactic acid the sulphur yellow ring is perfectly transparent in both of these positions. Furthermore, if 0.3 c. c. alcohol, ninety-five per cent., is added to each test tube containing the tartaric and lactic acids, and the test tube is shaken, the ether column in each test tube remains clear, but the iron column of the tartaric acid becomes cloudy, while the iron column of the lactic acid remains clear. The sulphur yellow rings of the malic and oxalic acids soon fade; the lactic acid ring persists. Be-

side the floating test the presence of succinic acid may be confirmed by the following test: If a solution of succinic acid is boiled with a few drops of concentrated sulphuric acid, in a test tube, the odor of celery is given off.

The general deduction from these experiments is that if the ether extract of the chyme shows a colored ring on the floating test, the chyme contains organic acids. Thus we have another and a positive means of demonstrating the presence of organic acids, beside the method advocated by me before, which consists of the use of the Töpfer's solution. When testing for lactic acid, no alcohol should be added to the chyme, as alcohol itself gives a sulphur yellow ring, although not of the same intensity as the lactic acid.

The test for combined hydrochloric acid is a negative one. We do not test directly for such acid. The indicator we use reacts with all other acids, save the hydrochloric acid in combination. This test is used then, when the question arises whether the stomach secretes any hydrochloric acid at all. The indicator for such purpose is a watery one per cent. solution of alizarin. We proceed in the following way: First we determine the free hydrochloric acid, organic acids, and the general acidity. We then take another specimen of the chyme and use two drops of the alizarin solution as indicator and titrate until the chyme turns purple. Supposing we proceed with the illustration given before, to determine the combined hydrochloric acid of the same chyme. We shall have to take another five c. c. of the filtered chyme and put into it two drops of the alizarin reagent and begin to titrate with the decinormal sodium hydrate solution. After having determined the free hydrochloric acid, the organic acids, and the general acidity, the buret read 14.4. We now resume the titration and find that, when the chyme turns purple, which is the end reaction of the alizarin, the buret reads 17.1, indicating that in this titration 2.7 of the caustic soda has been used up. If we now multiply 2.7 by twenty we get as the result fifty-four. The general acidity, which we have previously ascertained was seventy from which we now deduct fifty-four, which leaves sixteen. The complete answer will be, that the chyme specimen spoken of before contained free hydrochloric acid eighteen, organic acids thirty, combined hydrochloric acid sixteen, and that the general acidity was seventy, leaving an acidity of six unaccounted for. It is assumed that the acidity of the chyme, not otherwise accounted for, is due to acid phosphates. I confess, that as yet, I have not been able to demonstrate the acid phosphates in the chyme of the test breakfast, consequently, I cannot vouch for the correctness of such an assumption. Quite the contrary. According to the simple test which I have devised for such purpose, I failed to get the reaction for acid phosphates. My test is based upon the fact that the red ferrirhodanide is decolorized by phosphoric acid and the phosphates. This red ferrirhodanide solution consists of:

Distilled water, ... 5 c. c.;
Ten per cent. solution ferric chloride, ... 2 drops;
Five per cent. solution ammonium sulpho-
cyanide, ... 5 drops.

Instead of the ammonium sulphocyanide, another cyanide, as sodium or potassium can be used. The reaction is performed in this manner: One c. c. of this reagent is put into each of two test tubes. To one test tube is added the chyme, and to the other as much water as chyme was added to the first test tube. In the presence of phosphates the red ferri-rhodanide is either entirely discolored by the added chyme, or nearly so. The test tube to which water is added serves for comparison, to see whether the change of color, if any, in the test tube to which the chyme was added, is due to the possible presence of phosphates or simply to dilution.

This test is a very delicate one. The chemical constitution of the chyme does not hinder this reaction. This I have proved to my full satisfaction. The chyme was tested first for acid phosphates according to the method just described. When this test gave a negative result, the merest trace of an acid phosphate was added to the same chyme and the test again applied. The test now gave a positive reaction to the presence of the acid phosphates. This proves conclusively that the chemical constitution of the chyme will not interfere with the test. If any acid phosphates are present in the chyme this test will prove positive and, if this test is negative, it shows that there are no acid phosphates present. And, as already stated, I have failed to find the presence of acid phosphates in the chyme.

Where hydrochloric acid is absent, it is occasionally desirable to determine the amount of the deficiency. The necessary operation is performed by titrating the chyme with a decinormal hydrochloric acid solution from the buret, and using as indicator any reagent that reacts with an acid, either the tropeolin or Töpfers solution or blue litmus paper or the congo paper. We proceed again in the same way as we determined the acidity. Five c. c. of the chyme are put into a beaker, the indicator is added as before, and so much of the decinormal solution of the hydrochloric acid is slowly added, drop by drop, into the beaker until the respective color reaction takes place. Or if litmus paper or congo paper is used, we test the reaction by removing with the loop of a platinum wire just a trace of the chyme, test this upon the paper, and continue to do so until the chyme reacts to the acid. We now note the number of cubic centimeters of the decinormal hydrochloric acid that were used and multiply this by twenty, as before. Assuming we had a chyme which showed hydrochloric acid deficiency and we wanted to determine the presence and quantity of pepsin according to Mette, we proceed in this way: We first determine the amount of the hydrochloric acid deficiency. Supposing this was twenty, that is, it required twenty c. c. of the decinormal hydrochloric acid solution from the buret to give the acid reaction to 100 c. c. of the chyme, we then take another specimen of the chyme, say five c. c., and add first from the buret sufficient to make up the deficiency, and in this instance we add one c. c. of the decinormal hydrochloric acid. In addition we must bring this chyme up to the normal, that is the chyme must contain about thirty of free hydrochloric acid, and we therefore add additional 1.5 c. c. of the decinormal hydrochloric acid. Altogether we have to

add 2.5 c. c. of the decinormal hydrochloric acid to the five c. c. of the chyme before we apply the Mette test.

616 MADISON AVENUE.

DREAMING AND DREAMS.

BY GEORGE DRENFORD, M. D.,

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Modern psychology rests on experiment, and experiments in psychic matters are of enough moment when dealing with so difficult and delicate a subject as the waking state. But modern psychology has, by way of extension, applied its methods, the methods of inductive science, to the phenomena of sleep, and still more particularly to dreams and the vital fantasies of dreams.

When Weygandt had pronounced his conviction as an established idea that probably all dreams are due to some stimulus (*Reiz*), and that the laws of reaction on the part of the "dreaming consciousness" most likely are no others but those observed in normal life, the problem of dreams became one of general interest. How to observe and establish the connections of the elements entering into, taking possession of, and penetrating the dreamer's consciousness, was then a subject of dignified attack.

But the scientist charging himself with this line of experiment cannot help living more or less his ordinary daily life, and is, in addition, usually subject to, and hampered by other influences bearing upon his own dream life. What then, must be the energy and fitness of an experimenter treating such brittle material "as dreams are made of" and managing to extract valuable gold nuggets out of the dross of slag and to make a clear path through a labyrinth of bewildering circumstances!

John Mourly Vold, born August 24, 1850, a native of Trondjem, Scandinavia, devoted twenty-five years of his celibate life to experiments based on the thought that it might be possible to make out something of their nature by employing an artificial stimulus or rather a series of such stimuli in order to bring about and induce specific types of dreams. He did not live to see the two volumes translated into German and published after his death by Klemm in Leipsic, which contain an analysis of the rich collection of material, which he with the assistance of some hundreds of teachers and students of both sexes, gathered in his successive peregrinations, while holding the chairs of docens and professor of philosophy; for he died too soon for science in general on the first of July, 1907.

The unusually thorough analysis, qualitative as well as quantitative, of his materials brought together at home and abroad in the clinics of Germany, Holland, Scandinavia, and France is apparent in these two volumes. His science of what may be called "dream phenomena" constitutes the principal value of these volumes. He had, through a number of other philosophical publications, already become known as one of those modern thinkers who in a critical theory of cogni-

tion find the basis, and recognize the elements which lead to a superstructure of idealistic results (*Weltanschauung*). But his *opus magnum*, viz., the experiments in psychology that refer to dreams and hallucinations, furnish the bulk of his psychological lifework. For them, he employed systematically the method of comparing reports on dreams that had occurred in one or several nonexperimental or control nights; that is to say, during normal dreams. By this method, he sometimes reached surprisingly sharp pictures of effects from stimuli upon dream formations, a method invented and perfected by him. In fact, in opposition to the Sigmund Freud method of claiming everything, it may be asserted in his behalf that he, one of the first, and as a master, introduced and made possible exact psychological analysis in the delicate realm of dreams. Of this vast dream realm only a frontier or province has been surveyed, and of the many possible types of stimuli only a section has been employed for his experiments, with the happy consequence that the latter have been correspondingly more thorough. In contradistinction to the Freudians, he chants no formula, adopts no arbitrary norm, maintains no thesis sexual, repressive, or otherwise. Facts alone are for him.

Mourly Vold studied and strove to gain access and insight into the causal connection between stimulus and the dream that accompanied or resulted from the irritation. If his reports are not mysterious or detailed enough to please the Jung-Freud-Bleuler school, it is because his work has been honest and conscientious, and the reader at all events has the advantage of following experiments presented fairly and without bias. You see the whole as well as the details of the research done together with all the alert controls and criticisms which a careful experimenter continuously makes before he rests satisfied with the results of his investigation.

The character of the Vold experiments was for the most part cutaneous muscular stimulation. The skin is always influenced together with the muscles, and without an exception in his vast material, contrary to positive statements of Freud, always brings about a definite dream traceable to the stimulus. The method, instruments, and details of the experiments, how he irritated the back of the body, his use of gloves, and other appliances, his creation of waking dreams, delusions in the darkroom, and other items of importance to be carried out by the practical experimenter are necessarily passed over here. But it is interesting to note in particular that the articulation of the foot was chosen for its delicate sensitiveness and was more easily influenced to produce fantasies than the knee. Stockings and bandages, single, double, and crossed, resulted in a number of dreams that Freud, Bleuler, Jung, Jones, and others have tried to explain upon the sexual repression and sublimation theory. These were controlled by the "normal" dreams, and the reader finds himself observing cases of "strong parallel double," foot leg irritation, normal cases of "very strong or strong double, but not parallel double" foot leg irritation; normal cases with "only weak" leg irritation, and cases of little dream substance.

The author, Mourly Vold, records that he had for years worn stockings during sleep. His own impression is that the cutaneous irritation is much weaker than the muscular stimulus, and that the reaction amounts only to cutaneous dreaming, without localized warmth. A bandage bound around the left foot articulation of nineteen students furnished a number of stimuli that proved to be nearly twice and one half as strong for dream life as normal dream life sleep without it—a result conforming to the author's personal experience. Nothing could account for the difference but the irritation of the foot articulations.

"Double" irritations cause, it would seem naturally enough, different results. To bring about these it was necessary to tie the feet together in addition to bandaging them, in order to achieve a more perfect parallelism when compared with the controls of unstimulated dreamers. The results of such measures were what the author calls parallel motives, the motive of passive total movement, and rhythmical movements.

1937 MADISON AVENUE.

HYPERIDROSIS; ETIOLOGY AND TREATMENT.*

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DEFINITION AND OCCURRENCE.

"Hyperidrosis is a functional disorder of the sweat glands characterized by an excessive secretion of sweat" (Schamberg), and is classified according to Weidenfeld, of Vienna, as hyperidrosis localis, hyperidrosis generalis, hyperidrosis universalis (rare). Again, under the head of hyperidrosis, he speaks of eczema hyperidrosorum, recognizing two subdivisions (a) dysidrosis, and (b) eczema in hyperidrosis.

Examples of localized sweating are familiar to us all, occurring on the palms, soles, forehead, eyelids, nose, cheeks, axilla, genitalia, etc. Hyperidrosis nudorium, as the term implies, is present in the axillæ when a patient, for example, undresses before a physician (excitement).

The term "universal" in dermatology, according to the Vienna school, is used only when every part of the body is affected; whereas the word "general" is applied to designate that although most of the body may be involved, healthy skin is observed between the diseased areas.

Generalized hyperidrosis, as well as the universal, is symptomatic in character. Weidenfeld considers the latter rare, yet both are seen in such diseases as acute rheumatism, malarial fever, tuberculosis, night sweats, typhoid, etc.

Hyperidrosis paradoxa may occur with fever or with a subnormal temperature, and is observed in nervous affections and spinal cord lesions.

Eczema hyperidrosorum occurs on the palms of the hands and soles of the feet. From excessive sweat-

*Read before the Allegheny County Medical Society, June 18, 1912.

ing, small or larger vesicles may be produced, when it is known as dysidrosis or pompholyx, the characteristics of which are grouping, all lesions are of the same size, no redness, and hyperidrosis (Weidenfeld).

In contrast to this, we have "eczema in hyperidrosis" (a hyperidrosis complicated with eczema), having the following distinguishing features: Dissemination of the vesicles, which vary in size, redness, hyperidrosis, and reflex eczema (Weidenfeld).

Like the general and universal varieties, unilateral hyperidrosis scarcely belongs to the domain of dermatology; but when present should excite suspicion of a disease of the sympathetic system (Sahli).

It is most frequently found in pneumonia and may be found in various conditions dependent upon reflex origin from the pneumogastric nerve; aneurysm, hemiplegia of cerebral origin (Sahli); and peripheral facial paralysis (Köster).

ETIOLOGY.

The disease is of nervous origin, central or peripheral. The vasomotors, the ganglia, or the nerves governing the sweat glands may be involved. Again we have internal and external factors.

Internal factors. 1. The glands themselves may be involved. 2. Diseases of the heart. 3. Anemia. (Both these factors cause hyperidrosis by insufficient oxidation.) 4. Nervous. It may be of purely nervous origin and may be seen in such diseases as syringomyelia, neurasthenia, or reflex, as from pain. 5. Diseases of the internal organs. This is best exemplified in colic from renal calculus, gallstones, etc. 6. Psychic, as from fear of pain. 7. A local condition which frequently is the cause of hyperidrosis is flatfoot.

External factors. 1. Pilocarpine may cause hyperidrosis by action on the glands or spinal ganglia. 2. All arsenic preparations, as the trioxide, salvarsan, etc.

TREATMENT.

General. As in all other conditions causal treatment is the primary object. It is not within the domain of the dermatologist to prescribe general treatment, excepting at times for the neurasthenic and anemic patients, such remedies as tonics, hematincs, hydrotherapy, etc.

Internally, hyperidrotics may be used, such as atropine or agaricin (five to ten milligrammes in pill form, twice daily), never in larger doses, since the drugs must be used for some time.

Local. The sweat glands, as well as the blood-vessels, must be influenced, and this is accomplished by astringents and antihyperidrotics.

1. Astringents. These include the organic acids, acetic, salicylic, tannic; and the inorganic acids, nitric, sulphuric, boric.

2. Antihyperidrotics. Of these formaldehyde solution, unguentum diachylon of Hebra, alun, and bismuth subgallate are frequently employed.

Chromic acid. A concentrated solution is applied by painting on lightly for three or four days. This causes a superficial slough, followed in three

or four days by small scales, and complete exfoliation in five to eight days. It may be necessary to repeat this procedure. It should also be remembered that this drug stains yellow or brown.

Salicylic acid or tannic acid is used in the strength of five per cent. in starch, forty parts, and talc, sixty parts. These are very good, but not as rapid as the chromic acid treatment, taking eight to fourteen days for a cure. After thorough washing and drying of the feet, the powder is applied inside the shoes and stockings. It is essential to have frequent change of both shoes and stockings. The latter should be either silk or woolen, but never cotton. Here we may also mention the correction of flatfoot, when necessary.

Alum acts hygroscopically and also by its acid properties, alum being the double salt of potassium and aluminum sulphate. It is applied in the same way as the salicylic powder.

The diachylon ointment of Hebra is of especial value in the presence of eczema, being spread thickly on linen, applied, and then bandaged. These applications are changed daily and in eight to fourteen days a cure may be expected.

Oppenheim, of Vienna, is trying a new treatment. In order to prevent the acid formation, and thereby dermatitis or eczema, he uses alkaline powders:

R Sodium bicarbonate, ...1.0;
Magnesium oxide, ...2.0;
Amylum, ...10.0.
M. ft. pulv.

This is dusted into the stockings in the usual manner. It does not prevent hyperidrosis.

When eczema is not present, the following formula may be used:

R Formaldehyde solution, ...5.0 to 10.0;
Alcohol, ...100.0;
Glycerin, ...2.0.
M. S.: To be applied twice daily.

For the treatment of cheiropompholyx, Brandweiner, of Vienna, recommends, after washing with warm water, the application of

R Salicylic acid, ...6.0;
Alcohol, ...200.0.
M.

This is permitted to dry on the parts which are then powdered with

R Salicylic acid, ...5.0;
Talc, } āā 25.0.
Zinc oxide, }
M.

Bismuth subgallate is a very good and efficient powder. It is simple in its use, being employed in all the dermatological clinics in Vienna, in full strength or with talc or starch.

Where the vasomotors are at fault, hot foot baths, as hot as the patient can tolerate, act as an antihyperidrotic by contracting the vessels. Following the bath the parts should be thoroughly dried and either the formaldehyde solution or the salicylic or tannic powders are applied.

Freund, röntgenologist to the Finger clinic, recommends the x ray for hyperidrosis; but only after continued repetition of the treatments are the glands destroyed and the hyperidrosis cured.

1217 WESTINGHOUSE BUILDING.

A PLEA FOR MORE EXPERT ANESTHETISTS.

BY MIGUEL LAVANDERA, M. D.,
New York.

When an operation requiring a general anesthesia is necessary among the well to do, the attending physician or surgeon informs the patient that a "special" anesthetist is to be engaged. Indeed, in many instances among this class of patients the expert anesthetist is called upon to render his special services just as the surgeon is asked to perform the operation. Even if this is to be done in a hospital, where internes more or less skillful in the administration of anesthetics are available, their skill is usually dispensed with. Thus in institutions where a resident anesthetist is always on hand, the "special" already mentioned often takes the resident's place.

Obviously it is the wealthy patient who learns to value the services of a specialist in anesthesia, as in all other branches of medicine, not that this class of patients more than others really appreciate the true importance of a well administered anesthetic,—they demand the services of the expert in question because they are told by the doctor in charge the advantages of such services, which, however, are seldom enjoyed by the majority of patients in less fortunate circumstances. It is this majority who ignore that the professional anesthetist is as much a necessity for the prevention and cure of disease as is the expert in other specialties, now fully recognized by every one.

The time will perhaps come when the laity as a whole will demand that anesthetics be given by the expert and by him only. Certainly that desirable time will be retarded so long as the profession in general fails to engage the trained anesthetist whenever occasion requires. Further, there are many who disregard the well known fact that a general anesthesia means more than "to put the patient under." Obviously to apply any fluid or vapor, by means of any device, to the patient's face, requires little or no skill. But any one whose fortune it has been to cause hundreds of ether, chloroform, and nitrous oxide anesthetics, will at once agree that "to put the patient under and keep him under" properly—not to mention the responsibility in so doing toward both the patient and the surgeon concerned—is not so easy a task.

Those in position to know have frequently reminded us of the pathological effects immediate and remote upon the organism due to general anesthetics—particularly from ether or chloroform—under proper surroundings and equally good conditions. How often it depends on the anesthetist's ability whether or not a patient undergoing an operation is to be spared an "ether eye," pleurisy, pneumonia, shock, or even death!

Certainly, were any of us to be anesthetized, a "special" anesthetist would at once be secured, not because we wish to cast any reflection upon the interne or any other member of the profession at hand, but because the "special" is known to do that entirely and well,—he has a name for his ability and skill, he therefore inspires confidence.

Why this attitude in most cases toward the specialist under discussion? Why this indifference to

so important a branch of medicine? This is a hindrance, not only to a more rapid advance in anesthesia, but also very discouraging to those who, by reason of their peculiar fitness, would otherwise become excellent anesthetists, among whom experts are now few, for the simple reason that the importance of their services generally, as already pointed out, does not receive sufficient recognition, often none at all. Why so? Perhaps the answer is twofold: The apparent easy means of anesthetizing and the relatively few fatal accidents therefrom, particularly with ether and nitrous oxide. Most surgeons or physicians excuse themselves by the assertion that "in the majority of cases which require a general anesthetic, there isn't enough in it even for the doctor himself." This, however, is the exception rather than the rule, at least with a private clientèle: the patient who engages a physician, often both a physician and a surgeon, can well afford, for the good of his or her health, to pay extra to the skilled anesthetist. As to free patients, all hospitals should provide well paid anesthetists, as has already been suggested by others.

How are we, then, to secure an adequate number of competent specialists in anesthetics? Let every surgeon or physician in charge of a given case for operation, demand the services of the expert anesthetist. Competition would naturally follow, and an adjustment of fees to suit the individual case would be the result, just as the physician's or surgeon's fees to-day depend on the patient's means. The risks of anesthetic complications would then be diminished, if not entirely removed, the public and the profession could count at all times upon the services of the expert already mentioned, while anesthesia as a specialty would then be made worth while to the would be specialist in anesthesia, which is not the case to-day.

420 WEST 121ST STREET.

THE PREVENTION OF MIDDLE EAR DISEASES.*

BY MAX LUBMAN, M. D.,
New York,

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The diseases of the middle ear are easily prevented if the laws governing the ear are understood and upheld. This statement will still hold good even should these laws be interfered with, provided prompt attention is given at the proper time. The laws are not many—two in number; one is based upon physiology, and we call it a physiological law, while the other is based upon physics, and is a physical law. The physiological law governs the ear through the mechanism of deglutition, whereby air is permitted to enter the middle ear. Through such ventilation the physical law is upheld by the equalization of the external atmospheric pressure upon the outer side of the drum membrane.

To see how deglutition affects the ventilation of the middle ear, we must glance over the anatomy of these parts. The middle ear, as we all know, communicates with the oropharynx and nasopharynx

*Read at the Clinical Society of the Har Moriah Hospital on November 11, 1912.

through the Eustachian tubes, which open in the mouth into the upper part and side of the pharynx, on a level with the inferior meatus. The walls of the tubes are always in contact, except for a small space near the bony portion of the tube. The tensor palati muscles have their origin at the pharyngeal extremity of the Eustachian tubes, and, by the action of these muscles during the act of deglutition, they open the tubes. Thus, a free admission of air in the middle ear takes place, and its ventilation is accomplished. Through this ventilation of the middle ear, the external atmospheric pressure upon the external side of the drum membrane is equalized. It is evident, therefore, that no obstructions or occlusions should be found in the path of communication between the oropharynx and nasopharynx with the middle ear.

It will also not be amiss to look over the physiology of the parts most concerned, i. e., the drum, tympanic cavity, and the Eustachian tubes.

The office of the drum membrane is to receive and convey sound waves to the ossicles, thence to the labyrinth. It also protects the tympanic mucous membrane from the deleterious effects of the air, as well as from entrance of morbidic germs and foreign bodies.

The Eustachian tubes are to ventilate and drain the tympanic and mastoid cavities.

The tympanic cavity with its contents transmits the sound waves to the labyrinth. It also forms a channel of communication between the Eustachian tubes and epipharynx on one hand, and antrum with mastoid on the other.

It is also in place to add here the physiological law which states: "Anything that interferes with the normal tension existing between the membrana tympani, ossicles, and the contents of the oval window, will cause tinnitus and deafness."

Now, when the physiology is well understood, let us see what are the etiological factors that produce middle ear diseases. The causes are two, namely, pathogenic microorganisms which are the exciting cause of inflammation, and obstructive conditions interfering with the drainage and ventilation of the cavity, as the predisposing cause. By lowering the resistance of the tissue, the pathogenic microorganism then flourish, and with their toxins excite the reaction of inflammation. Of these two causes, much more stress should be laid upon the obstructive cause, leaving out of consideration congenital malformations or tumors producing obstructions, adenoids are the only cause which act as an obstructive agent to produce middle ear diseases.

Adenoids are hypertrophied lymph glands which normally exist in the epipharyngeal space. They are chiefly situated on the superior and posterior wall of the epipharynx, though they may extend into the fossa of Rosenmüller, and into the mouth of the Eustachian tubes. They consist of a fibrous connective tissue framework supporting masses of lymphoid cells. Owing to its peripheral position, it has an epithelial covering upon its free surface, differing from the more deeply placed lymphoid glands.

There is a pathological law governing adenoids, which is, "that the lymphatic structure of children becomes enlarged and hypertrophied in response to

bacterial stimulation, which, in adults, does not cause lymphoid hypertrophy to a corresponding degree." Therefore, as the exanthematous fevers occur chiefly in early childhood, when the special susceptibility exists, it is but natural to find adenoids most frequently during that period of life. Statistics of McBride and Turner show that adenoids are most frequently found between the sixth and fifteenth years of life, though they may occur at any period. Killian states that in forty per cent. of patients up to the fifteenth year adenoid vegetations are present.

The diseases of the middle ear can grossly be classified in two divisions, the dry form, and the moist. By the dry, I mean otitis media sicca, while the moist is with a discharge which can be subdivided into acute and chronic. Of these two forms, the dry is of more interest to us, for though the purulent form is a very serious condition *per se*, and more so when neglected, having serious complications such as mastoiditis, brain abscess, sinus thrombosis, etc., still we have attained the knowledge and skill to meet the emergencies as they arise; but, for the ordinary dry form, with its distressing symptoms,—tinnitus, deafness, etc., our knowledge of relief is very limited. What a pitiful sight to see young adults in the vigor of health, going from clinic to clinic, seeking in vain for relief from their miserable symptoms, not knowing how little we can do for them at this particular stage.

From the normal mechanism of the middle ear ventilation and pressure equalization above indicated, we can readily see that any obstruction which is large enough to fill or obstruct the nasopharynx must necessarily interfere greatly with the perfect action of the palatal muscles, with the result of imperfect ventilation and pressure equalization. Still more, each act of deglutition under such a condition will exhaust air from the tympanic cavity rather than replace it, as we can readily demonstrate. By catching the alæ nasi between the thumb and forefinger, compressing them tightly, and swallowing, a sensation of stiffness is immediately experienced in both ears, due to the exhaustion of air from the middle ear, producing a lowered endotympanic air pressure, which causes the following pathological condition: The blood within the vessels supplying the mucosa of the middle ear feels the partial vacuum thus created, and congestion and engorgement follow. This congestion necessarily leads to a changed nutrition of the parts, and forms a disturbed relationship in the cellular structures.

All these phenomena predispose to inflammatory processes, and, by the entrance of bacteria, we get otitis media purulenta. In case bacteria do not invade the inflammatory field, a catarrhal exudate is formed, which may gradually subside, followed by other attacks to induce a productive inflammation, causing a thickened retracted drum with ankylosis of the ossicles, which, according to the physiological law above stated, produces tinnitus and deafness.

Having outlined the result of retronasal obstruction, the question arises: Why should medical men not encourage parents to have adenoids removed as soon as symptoms of obstruction show themselves?

Rhinitis is a very common occurrence in every walk of life, especially in children, in whom the

activity of the lymphoid system is great. On account of its frequency, and the slight disturbance it produces constitutionally, treatment is neglected by medical men. They should know that the mere running nose is only a dial to indicate that either the nose or the retranasal space is not in a normal condition. Instead of looking for the cause, however, and removing it, they treat the effect, by advising the application of a little vaseline at night, which advice is quickly confirmed by the neighbor.

I may quote Metchnikoff (not word for word) in his latest work, *Prolongation of Life*. He states: "Any organ in the human body which functions in harmony with its physiological construction cannot be diseased." Hence, a steadily running nose in a child should attract the attention of the medical man.

Some physicians are under the impression that adenoids atrophy or shrink at puberty, and, therefore, operation is either not advised or delayed. Allow me to tell you that it is a dangerous thing to do, for, while waiting, the attendant inflammation is always progressing, and may, and actually *does* in sixty-six per cent. of all cases, invade the Eustachian tubes and middle ear. Atrophy does not occur after puberty any more than at a less advanced age. Indeed, the atrophy is independent of the age of the patient. Why wait, therefore, for a process of shrinkage which has no definite period of occurrence? The observations of McBride and Turner confirm this statement.

Here it will also not be out of place to indicate the minor sequelæ of adenoids. The development of the face is often materially modified. The open mouth, absence of the nasolabial folds, the short upper lip, broad flat upper half of the nose, and the narrow, slitlike nasal opening all combine to form the so called "adenoid face," the general expression of which is stupid. The degree of facial disturbance is usually in proportion to the degree of nasal respiration, rather than the actual size of the adenoid growth. As J. E. Schadle points out, the average capacity of the epipharynx is about seventeen c. c. and its lateral diameter is longer than the anteroposterior. Hence, if the capacity of the epipharyngeal space is diminished, or its anteroposterior diameter contracted, a small adenoid mass may produce a greater degree of nasal obstruction than a large growth in a more roomy epipharynx.

The interior of the nose is also modified in its development. As J. S. Thompson pointed out, the loss of the physiological stimulation incident to nasal respiration results in undeveloped turbinates. The hard palate is usually Gothic or arched, especially in its anterior portion. The contraction of the lateral diameter of the arch sometimes causes the central incisors to protrude and to be in distal torsoocclusion twisted upon their axes, making their posterior surfaces face each other.

The respiratory system is also affected. The lateral walls of the chest are contracted, and form the characteristic deformity known as "pigeon breast." The lungs are undersized, and respiration is shallow; the transfusion of gases through the walls of the air vessels is impaired—too little oxygen passes into the blood, and too little carbon dioxide is thrown off.

Frederick Coolidge calls attention to the relationship between adenoids and the various forms of club feet (due to a deficient deposit of lime salts).

CONCLUSION.

I would say that middle ear diseases can be prevented by removing obstructions in the postnasal space. Adenoids, when not removed, produce middle ear diseases in sixty-six per cent. of cases (Ballinger). The physician who sees the disease in its incipency, for instance, such as a mere running nose, sleeping of child with open mouth, or notes the complaint that the child does not hear well, should, under no circumstances, ignore these symptoms, but should examine the child for adenoids, and, if found, explain to the parents the necessity of removing them. Adenoids do not atrophy at puberty, and it is very dangerous to wait. They have a deleterious effect on nutrition and are very closely allied with the different deformities of the lower extremities, and, finally, the ear is a very important organ in our economy and is, in just proportion, a dangerous organ when neglected. Therefore, it deserves more attention from the family physician, and, if this paper should act as a stimulus to the general practitioner, my work will be rewarded.

78 EAST FOURTH STREET.

TEN CASES OF GOITRE.

A Bacteriological Study of Cultures and of Stained Sections from the Thyroid Gland.

(From the Laboratory of Clinical Pathology, Philadelphia Polyclinic and College for Graduates in Medicine.)

BY JOHN J. GILBRIDE, A. M., M. D.

Philadelphia,

Lecturer in Surgery, Medico-Chirurgical College; Assistant Surgeon, Medico-Chirurgical Hospital; Instructor in Diseases of the Stomach and Intestines, Philadelphia Polyclinic.

These cultures were made from pieces of the thyroid glands obtained from Dr. John B. Deaver's patients at the time of operation at the German Hospital. A piece of gland the size of the distal phalanx of one's finger was cut from the excised part of the thyroid gland under aseptic precautions and placed in a sterile test tube. The cultures were then made by placing small bits, three or four mm. square, of the thyroid in the culture media. Along with using ordinary culture media, i. e., bouillon, agar, glucose agar, etc., culture media containing calcium carbonate and normal salt solution were also used. A saturated solution of calcium was used with the thought of providing one of the salts which is the most common ingredient in the water in goitre districts of Europe.

I made a search through some of the literature to find the composition of the water in some of the districts of Europe in which goitre is common, but without success.

A special effort was made to grow anaerobic organisms, and sections were stained with Gram's stain, methylene blue, and fuchsin, according to the method of staining for microorganisms in the tissues.

OPERATIONS BY DR. JOHN B. DEAVER.

CASE I. Exophthalmic goitre. Operation March 11, 1912. Culture negative. Stained sections negative.

CASE II. Exophthalmic goitre. Operation March 13, 1912. Culture negative. Stained sections negative.

CASE III. Exophthalmic goitre. Operation March 28, 1912. Cultures negative. Stained sections negative.

CASE IV. Exophthalmic goitre. Operation March 30, 1912. Cultures negative. Stained sections negative.

CASE V. Colloid goitre. Operation April 10, 1912. Cultures negative. Stained sections negative.

CASE VI. Exophthalmic goitre. Operation April 25, 1912. Culture negative. Stained section negative.

CASE VII. Colloid goitre. Operation May 15, 1912. Culture negative. Stained section negative.

CASE VIII. Cystic goitre. Operation May 27, 1912. Culture negative. Stained section negative.

CASE IX. Cystic goitre. Operation June 10, 1912. Culture negative. Stained section negative.

CASE X. Exophthalmic goitre. Operation June 19, 1912. Culture gave a growth of *Micrococcus tetragenus*. Stained section negative.

These ten cases represent six cases of exophthalmic goitre and four cases of simple goitre. The cultures and stained sections of all of these cases were negative, with the exception of the culture made from Case X, one of exophthalmic goitre which gave a growth of *Micrococcus tetragenus*. In a series of fourteen cases reported by me (*Journal of the American Medical Association*, December 16, 1911, p. 1988) there were six cases of exophthalmic goitre and eight cases of cystic goitre. A growth was obtained by culture in two cases. One case of exophthalmic goitre gave a growth of *Micrococcus tetragenus*, and a growth of *Streptococcus vermiformis* of Sternberg was obtained from one case of cystic goitre.

This work was done in the laboratory at the Philadelphia Polyclinic, and I wish to thank Dr. John A. Kolmer, director of the laboratory, for suggestions and aiding me in the examination of the stained sections.

1934 CHESTNUT STREET.

SALVARSAN IN ASTHMA.

By L. ELLIS GLASGOW, M. D.,
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CASE. G. S. N., aged forty-two years; married; occupation, chief clerk. Patient presented himself to me July 11, 1912, with small indurated spot on left side of corona, which he had noticed two days previous. Patient's history was that he had not had sexual intercourse for over three weeks, and spot appeared as small papule, the surface being rubbed off leaving a small ulceration with very little discharge.

His previous history was negative. His mother had always been a sufferer from asthma, and patient had same since childhood, so much so that in the last ten years many times he was unable to attend to his duties, and would have to remain propped up in bed, being unable to rest in recumbent position. For several years he had taken no treatment for this condition, except asthmatic powders, the smoke being inhaled during severe attacks, but previous to this time he had consulted many physicians with little or no relief.

The dark field illumination was made of discharge from the ulceration, and spirochetes were found. The following day, October 12, 1912, patient received 0.4 gramme salvarsan intravenously, in left median basilic vein, with the result that in a few days the chancre was completely cured, and patient said from the evening of the injection he suffered no symptoms of asthma, although he had a very violent reaction, his temperature reaching 103.2° F., with a chill and looseness of bowels, increased amount of urine, and general malaise.

This reaction passed off within forty-eight hours, and the patient had no further treatment until December 11,

1912, when a Wassermann seroreaction was taken, which showed a mild inhibition. December 18, 1912, intravenous injection 0.3 gramme salvarsan was given patient, with result that Wassermann examination gave negative reaction, January 24, 1913.

My reason for reporting this case is to know if any similar cases have been found, in which salvarsan has seemed to relieve symptoms of asthma.

Abstracts and Reviews.

MODERN PROBLEMS OF NUTRITION.*

By PROFESSOR FRANZ KNOOP,
University of Freiburg.

Until very recently, in fact almost until the present century, physiology has been dominated by morphological concepts, and the microscope has held sway as the instrument by which the unknown facts of life were to be discovered. This dominance of morphological methods is still noticeable at the present day, both in the courses given by the medical schools and in the practice and teachings of the clinician. Within the present century, however, the fundamental value of chemical studies has become recognized, and biochemistry is rapidly coming into its own as the most valuable means of discovering the processes by which life and nutrition, health and disease, are maintained, brought about, or overcome. The old analogy between the human body and an engine is no longer adequate, for it is recognized now that the fuel—nutrition—of the body must supply, not only the energy for the working of the parts, but also the materials for the continual restoration of the losses caused by wear upon the parts. Chemical and not morphological studies will provide the details of these processes of utilization of the nutritive materials.

The conception of the existence and action of hormones was an enormous stride toward the elucidation of some of the chemical processes. At present no thinking person can regard the secretions of the pituitary, thyroid, adrenals, etc., without seeing the necessary corollary that the chemical processes in the human body must be very sharply specific and must be concerned with elaborate destructions and syntheses.

Many attempts have been made to isolate from the bodies of man and of animals some of the intermediate products of the chemical changes which one or another type of food underwent, in the hope of being able to trace the whole course by means of these indications. Such attempts have been only very slightly successful, and this because of two main facts: First, that the chemical processes in man take place under the most remarkably uniform conditions of moisture, motion, heat, etc., conditions which it is well nigh impossible to maintain *in vitro*; second, that the processes of oxidation or reduction, of synthesis or destruction, take place very slowly, only a few molecules of a product being formed at a time. On this account the concentration of intermediary metabolic products in the body is extremely small at any one time, although

*Summary of a lecture delivered before the Harvey Society at the Academy of Medicine, New York, March 22, 1913.

during the course of a day a comparatively large amount of material may be utilized.

By means of perfusion of single organs, and other similar methods, by which a single step can be watched and the intermediary products obtained in sufficient concentration for isolation and identification, some advance has been made. But we are still far from the goal.

The practitioner looks upon the chemical methods as something perhaps of scientific interest, but certainly of no value to either his patient or to himself. This attitude is utterly fallacious, and it may be stated that the study of reactions *in vitro* has led to the understanding of many of the problems of more elaborate metabolic processes.

By such studies, coupled with simultaneous or subsequent observations of the processes *in vivo*, it has been our good fortune to gain an understanding of the metabolism of the fatty acids. These acids have been found to undergo oxidation, in which they always lose two carbon atoms. By this process they are gradually reduced to relatively simple chemical compounds. On the other hand, the aminoacids are oxidized in such a way that they lose but a single carbon atom. Subsequent to this type of chemical change, and after reduction to a certain point, they undergo a further simplification with the loss of their nitrogen and the conversion of the acid from one of the aminoserries to a fatty acid. From this point the process continues as in the case of the acids which started as fatty.

These observations on the catabolic changes of these two groups of substances led to a study of the possibility of the synthesis of proteid from carbohydrate, it being already known that the reverse process could take place.

By treating grape sugar *in vitro* with ammonia it was found that aminoacids could be formed. *In vivo* the same process is possible, for ammonia is always present and the synthesis consists in an interaction between this substance and one of the alpha ketonic acids which are derived from carbohydrates in abundance. The resulting aminoacids, formed either *in vivo* or *in vitro*, are *Bausteine* (building stones) for the synthesis of proteids. Thus, by the discovery that alpha ketonic acids arise from the metabolism of sugar, and that these acids may be converted into aminoacids by the action of ammonia, we have the explanation of the proteid sparing action of the carbohydrates and of ammonia, both of which facts have been recognized by the clinician, but which have been held to be impossible by the older school of metabolic physiologists, for they did not recognize the possible conversion of carbohydrates into proteids.

From these observations we are led to believe that the products of intermediary metabolism may, and probably often do interact one with the other for the formation of new products.

We are led, further, to the suggestion that obesity may be the result, in some cases at least, of an interaction between the several fatty acids or, rather, of a reversible fatty acid metabolism.

In addition to the elucidation of the facts of nutrition by biochemical methods, it is to be recalled that many, if not most disease processes are probably chemical in basis. It is to be borne in mind

that never so slight a disturbance in the chemical processes may lead to the most far reaching and disastrous disturbances to health.

At the present time all branches of medical science are calling to the biological chemist for the explanation of the intricate processes which he alone is in a position to analyze.

Therapeutical Notes.

Clinical Uses of Liquid Air.—T. C. Beebe, in the *American Journal of Dermatology* for October, 1912, asserts that a five years' trial has convinced him of the superiority of liquid air to carbon dioxide snow, radium, the x ray, and caustics in a wide range of conditions. The securing of good results depends merely upon experience in applying the agent with the proper degree of pressure and for the required length of time. The author uses for the applications pine throat sticks, one end of which has been cut down to fit the area under treatment and firmly wound with absorbent cotton. If a large area is to be treated it is best to make several applications, and where the area is on a mucous or ulcerated surface a thin layer of gauze should be placed over it in order to prevent the swab from freezing to the surface. The degree of pressure varies from a mere touch to well marked pressure, and the duration of the application from fifteen to forty-five seconds.

In cases of epithelioma treatment is begun with firm or severe pressure around the periphery, repeated at intervals of one or two weeks; subsidence of the effect of a former application is not waited for in repeating the procedure. From one to six applications will cause the lesions to heal; in but two of the author's cases of epithelioma did healing fail to take place. Two cases of lupus apparently healed after four to six applications; both patients had previously been treated with carbon dioxide snow, and had complained much of the pain and slowness of the latter method.

Nævi of all kinds, as well as chloasma and xanthelasma, the author finds it possible almost always to remove by means of liquid air, with practically no pain or residual scarring. It is very important that these lesions be treated early in life, while the tissues are soft, if the best results are to be obtained. In many cases of warts—particularly of the face and scalp—fibromata and corns, excellent results were obtained with a very few applications of liquid air. A case of vernal catarrh had shown gradual improvement under mild, short applications, and while still under treatment was almost entirely healed.

Intraperitoneal Oxygen Injections during Abdominal Operations.—H. J. Godwin, in the *Lancet* for September 21, 1912, reports gratifying results from this measure in the following varieties of operative cases: 1. After removal of large tumors, to overcome negative abdominal pressure; 2. in tuberculous peritonitis; 3. in certain instances to prevent the formation of adhesions, and, 4. in general septic peritonitis. Just before closing the ab-

dominal wound he inserts a specially made trocar and cannula into the abdominal cavity on the side opposite the incision. Withdrawing the trocar, but leaving the cannula, he next sews up the abdominal wound, connects a rubber tube with the cannula, and finally passes in oxygen from a cylinder through a Woulfe flask containing hot saline solution. The amount of oxygen introduced does not seem to be of any significance, but the author always passes in enough to obliterate completely the liver dullness. In his experience this measure has both prevented shock and arrested nausea and vomiting. If the abdominal cavity is completely filled with the gas, about two weeks elapse before it is wholly absorbed. Since the author has been employing the procedure in the ascitic form of tuberculous peritonitis he has never seen the condition recur.

Treatment of Whooping Cough.—J. Herz, in *Semaine médicale* for October 9, 1912, is credited with recommending the internal use of metallic copper and of inhalations of cypress oil and of formaldehyde in this affection. In children over two years of age, the dose of copper given is 0.0005 gramme ($1/128$ grain), administered morning and evening in water or milk. In those below the age mentioned considerably smaller doses are used. The cypress oil is used in a ten per cent. alcoholic solution. A piece of flannel is pinned to the little patient's clothing and allowed to remain both day and night; a few drops of the cypress oil solution are placed on it about every three hours—or when the odor disappears—and the child is thus kept constantly in an atmosphere of the oil. The formaldehyde is administered once daily by fumigation, i. e., much in the same manner as with the ordinary room disinfection at the close of infective illnesses. Herz has obtained with the foregoing measures results much superior to those of ordinary treatment. They are especially efficacious if begun early in the disease, though even later considerable relief is afforded.

Nascent Iodine as Antiseptic in Otorrhinology.—P. Laurens, in *Quinzaine thérapeutique* for July 25, 1912, is credited with the suggestion of using nascent iodine, liberated by the interaction of sodium iodide and hydrogen dioxide in aural, nasal, and laryngeal practice. In chronic suppurative otitis, in cases where regular treatment is not practicable, the effects of nascent iodine are superior to those of silver solutions or chromic acid. After a cleansing irrigation of the parts with boiled water, five drops of an aseptic three per cent. aqueous solution of sodium iodide are instilled, followed immediately by a like amount of hydrogen dioxide solution, which is then allowed to act for ten minutes. These instillations are to be repeated daily or on alternate days. They cause a certain degree of burning, which is, however, always bearable. In the terminal stage of acute suppurative otitis media, when a mucopurulent discharge persists after twenty days, notwithstanding the customary measures, each ordinary treatment should be preceded by the nascent iodine ear bath already mentioned.

In obstinate purulent rhinitis, as well as in ozena, after the parts have been cleansed with a tepid iso-

tonic solution, a spray of a thirty per cent. solution of sodium iodide should be used, at once followed by one of hydrogen dioxide, from a different spray apparatus. About six bulbfuls of each spray should be used, and the nozzle of the apparatus at first directed horizontally to moisten the lower turbinate, then elevated at an angle in order to reach, as in ozena, the middle and superior turbinates. In maxillary sinusitis the successive use of the two solutions may also give much benefit.

In pharyngeal affections, such as lacunar tonsillitis and chronic pharyngitis, the solutions may be employed either as sprays, direct applications, or gargles. In the latter case, the patient places in a halfglassful of water one teaspoonful of the iodide solution flavored with mint, and in another halfglassful one tablespoonful of the hydrogen dioxide. Alternate gargling with the two solutions is then carried out. In any instance, the amount of iodine set free can be regulated at will by changing the concentration of the iodide solution.

Treatment of Hemoptysis.—O. Grunbaum, discussing hemoptysis in the *Clinical Journal* for November 6, 1912, states that after the patient has been reassured in order to secure mental rest, he may receive a small injection of morphine, provided the hemorrhage or secretion from the lungs is not so profuse as to lead to asphyxia were he not to cough for some hours. The patient should be placed in bed, lying on the affected side, if this is known, and perhaps preferably without a pillow if the hemorrhage has been profuse, except in patients who are thereby rendered uncomfortable. Where it is difficult to make the patient stay still, an icebag may be applied to the chest, and instructions given to avoid its displacement. If the hemorrhage continues, strapping of the affected side should be considered. Oxygen, if given, should be used without exciting the patient, and may be supplied most simply through a rubber teat with a hole of fair size cut in it, the gas first being passed through a metal tube immersed in hot water.

To diminish the pulmonary blood pressure the first measure to be employed is a mild purge. The routine use of ergot is not justifiable, although there is a possibility that it may do good. Aconite, two minims of the tincture every hour, continued until the pulse becomes abnormally slow, i. e., below 65 to the minute, or irregular, or until the blood pressure falls below 90 mm. Hg., is the most useful drug. An attempt may be made to increase the coagulability of the blood by administering calcium lactate, thirty grains in solution, three times a day. The diet may be restricted with advantage, and often no harm will result from giving the patient only fluid for several days.

In obstinate cases the patient, if at an elevation, had probably best be moved to as near the sea level as possible. The side should be strapped, and if the hemorrhage still continues, and one is sure as to which side is bleeding, the production of pneumothorax seriously considered.

Placing bandages around the limbs to deplete the pulmonary circulation may do good for a short time. The introduction of epinephrine to the bleeding area by means of an atomizer may be tried.

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THE TREATMENT OF HEMOLYTIC JAUNDICE.

Although considerable labor, mainly by French clinicians, has demonstrated that a relatively large proportion of cases of jaundice, formerly obscure as to their pathogenesis, were due to the destruction of the red corpuscles, thus causing them to be grouped under the term "hemolytic," or "hemo-hepatogenous" jaundice, textbooks seem totally to have overlooked the therapeutics of this condition. This is mainly due to the fact that the results obtained have been conflicting, similar measures having produced dissimilar effects in symptomatically identical cases. Gradually, as the pathogenesis became elucidated, however, thanks to the labors of Widal, Klemperer, Chauffard, Teissier, and others, it became evident that the disorder was due to many different causes, and that successful treatment could be expected only when the cause in each case could be clearly determined and the remedy adjusted to that cause.

Proceeding from the best known to the more obscure groups of hemolytic jaundice, we have in quinine a valuable remedy in the cases which are traceable to malaria. Here the malarial parasite is the direct factor in the destruction of the red cells; the hemoglobin of the latter is converted into

melanin, which in turn is deposited in the skin and gives it its icteric hue. Quinine, by killing the organism, arrests the hemolysis and thereby the jaundice. Secondary syphilis may also give rise to hemolytic jaundice, the destructive factor here being also the specific organism. Not only does specific treatment cause the jaundice to disappear, but, as recently shown by Sablé and Danel (*Journal des sciences médicales de Lille*, January 6, 1912), so do intramuscular injections of dioxidiamidoarsenobenzol, the blood count being rapidly restored to normal. The hookworm or ankylostoma, the bothriocephalus, and other intestinal parasites likewise produce substances which are destructive to red corpuscles and thus evoke typical hemolytic jaundice; thymol also cures this form by causing elimination of the parasites. The three general groups enumerated, malarial, syphilitic, and entozoa, clearly exemplify the vast field covered by the disease.

In another group of cases ascribed to autointoxication, the pathogenesis is not so clearly defined. The poisons may either be absorbed from the intestine, or retained through some organic renal lesion. Thus Widal, Abrami, and Brulé refer to a case due to postulcerative contraction of the rectum in which an artificial anus relieved the jaundice, which would soon recur if the artificial exit failed to give free passage to the excreta from which the causative toxics were derived. Closely allied to this form is the jaundice of pernicious anemia when it is due to autointoxication of intestinal origin. Here purgation and arsenic are quasi specifics. Arsenic, however, acts in a manner totally different from that ascribed to the agents considered in the preceding paragraph: It prevents, or at least is thought to prevent the destruction of the red corpuscles by increasing their resistance to the action of the hemolytic agent. Another drug to which this action is attributed is calcium chloride. This agent has shown its value in cases of nephritis attended by marked hemolysis when given in fifteen grain (one gramme) doses, four times a day. Parisot and Heully, in a recent article (*Semaine médicale*, February 19, 1913), reviewing the whole question, point out the value of this agent for the prevention of hemolysis caused by chloroform, ether, and other anesthetics. Finally, we have in cholesterin, as shown by many observers, a powerful antihemolytic agent. It has given excellent results in the hemolytic jaundice of pernicious anemia and chlorosis, severe cyclic albuminuria, and paroxysmal hemoglobinuria, with intense destruction of the erythrocytes, the best results being obtained by means of intramuscular injections of a ten per cent. solution of cholesterin in decinormal saline solution.

On the whole, it is evident that there is no longer justification for the absence in our textbooks of all reference to treatment of hemolytic jaundice.

TYPHOID ERADICATION.

It is no longer necessary to adduce evidence to prove that typhoid fever is a thoroughly preventable disease. For a long time it has been conceded that milk and water borne typhoid epidemics depend upon factors which are entirely within our control. More recently it is becoming apparent that it is both theoretically and practically possible to reduce the flyborne cases to almost the vanishing point. The health authorities in Jacksonville, by the enforcement of a sanitary privy ordinance and a concerted action against the fly and his breeding places, reduced the morbidity from typhoid fever in 1911 to a little less than one half of the figures for the previous year. Freeman, in commenting upon the present status of our knowledge regarding the transmission of this disease, declares that the subject is now so completely understood that preventive measures will yield desired results in every case where they are properly applied. The army manœuvres on the Mexican border last year offered a practical demonstration of the ground for such a sanguine belief. Given a certain area and sufficient men and money and typhoid fever can be entirely kept out; once in a given area it can be surely vanquished. Yet, notwithstanding these known facts, the disease still prevails throughout the civilized world. In this country the decrease in the typhoid death rate has not kept pace with the decrease in other preventable diseases. In the seven year period, from 1900 to 1907, the decrease in the death rate from tuberculosis of the lungs was 21.6 per 100,000 of population. From diphtheria it was nineteen, but for the same period typhoid fever showed a decrease of only 5.6. Considering the fact that the United States stands at the very forefront of those nations which have demonstrated their ability successfully to cope with large sanitary problems, the comparison of our own typhoid death rate with that of other countries is not at all flattering. During the five years ending in 1905, the annual average death rate from this cause in Germany was 7.6 per 100,000 of population. In the United Kingdom it was 11.5, whereas in the United States (registration area) the rate was 32.2. Sweden, Switzerland, and a number of other European countries also showed a comparison greatly in their own favor.

A little reflection must serve to show that at least one of the reasons for our comparatively bad showing lies in the fact that we consist of an aggrega-

tion of States, each one of which exercises for the most part its sovereign right in the control of health matters. The responsibility for what is really a matter of national importance is divided up too much among local and State health boards. As a result there has not been concerted action enough on a large scale. The preventive work has been almost entirely local, having so far been chiefly confined to the personnel of the army and navy and locally to cities and towns. The all important problem of getting rid of rural typhoid has not yet been seriously attacked. Until all the plague spots are attacked simultaneously and systematically, there can be no real typhoid eradication. As we recently pointed out, it is an error to suppose that typhoid fever is either an urban or a rural disease; consequently the problem is not one simply of eradicating it from town or country, but rather of eliminating those factors which transmit the infection from one community to another. According to Freeman these factors are all included under the following heads: From country to town, carriers temporary or permanent, persons in the incubating period, and persons actually sick, foods and drinks including water, dairy products, garden truck, fruits, shellfish, and possibly other foods; from town to country and between rural communities, persons infected in the cities or towns and incoming carriers, foods of various kinds, night soil and manure carried out of cities for fertilizing purposes, stream pollution, railway trains.

It will be seen that while several of these factors are capable of control by local health boards, others must be inevitably neglected unless provision is made for some sort of concerted action on the part of all health boards and the proper sanitary supervision of streams, interstate commerce, and travel. Unless all the factors are controlled the ultimate complete banishment of the disease is well nigh impossible. Not until concerted action, national in scope, has been undertaken can we truthfully say that we have done all we can to eliminate the trouble. This will require, not only considerable new legislation, but also a great deal of money. To convince the people that protection from typhoid fever is something worth spending money for is now the chief unsolved problem in its eradication.

It is within the limits of reason to consider that fully eighty-five per cent. of the typhoid deaths can be prevented, and such prevention would lengthen the average life at least 0.65 a year. As typhoid has its greatest fatality among men and women in the age period of their greatest economic value, we should thus very materially increase the sum total of all human productivity. It is not only in the saving of the life of the individual that economic

benefit would accrue, because for every death from typhoid fever there are many cases of illness which incapacitate the sufferers for a long period before their ultimate recovery. Fisher has estimated that beside the economic loss from every death from typhoid, there is the added loss of eight other cases of the disease with a total incapacity of seventy-five days for each case. The very conditions, moreover, which produce typhoid fever are also conducive to other kinds of sickness. This is shown by the fact that the purification of a typhoid infected water supply results in a diminution of the death rate from other causes than typhoid.

Although facts might be cited almost indefinitely and arguments multiplied to show that the prevention of this disease is of the greatest economic importance, yet would the case still be inadequately stated without at least a passing reference to the misery and sorrow which would be avoided if the public demanded the legislation to make such prevention an accomplished fact.

THE COST OF SUCCESS.

The timeworn aphorism of the candle lighted at both ends lasting only half its natural span, has never applied more accurately or more intensely to the average American city man than it does today. The higher cost of living, the desire for social recognition, and the luring attractions of the city are all contributing causes of an inexorable desire for success, that, hydraheaded though it may be in the multiplicity of its forms, still means, when reduced to its ultimate factor, only a firmer grip on the elusive god Mammon.

The indomitable driving force of American enterprise has, it is true, made itself felt in all parts of the civilized world. That fact in itself has, consciously or unconsciously to us, plastered an immense amount of comfort on our collective vanity. For American success does stand out unique and gigantic when viewed *in toto*, and without further analysis. But sooner or later we shall see that we are paying the price with a vengeance and that the law of compensation is asserting itself, surreptitiously but none the less surely. Thoughtful men are daily becoming more and more aware of the fact that the hundreds of thousands of Americans, we might say the millions, who make possible the abstract fact of our success, are individually traveling at a terrific pace to give us this so called supremacy. The intensity of their efforts may wear them out, but new recruits are ever ready to fill up the gap and keep the mighty ball rolling.

When we are constantly geared up to a high

speed, physiological laws raise a warning that read aright means, "Thus far shalt thou go and no farther." The very pleasures and recreations of the city man are unphysiological and exaggerated. Late hours with loss of sleep, dining at a time when repose is indicated, and violations of hygienic and dietetic laws in the matter of proper exercise and regular nourishment are all diminishing a vitality that can only be fleeting under such abnormal stress and strain.

Of what value is success if we spend ourselves untimely in its attainment? It is not hard to see that the unnatural demands of business and pleasure in our life are causing an ever increasing drain on the physical resources of the city individual. The mad scramble for success with its accompanying ability to indulge in dubious pleasures, would be ludicrous were it not tragic.

It is a terrible fact that cardiac diseases, cancer, and arteriosclerosis are eating more and more into the vitals of a nation that should be robust and virile. Insanity has increased enormously in the last half century. Sudden deaths are so commonplace that they pass unnoticed. And if we were to dwell upon the subject in detail, it could be shown that the intensity and single purposedness of the average American in the gratification of his lust for success, as well as for the enjoyment of exaggerated pleasures, play no small part in the increase and perpetuation of disease, insanity, and shortened lives.

Preventive medicine has, it is true, diminished the mortality of infectious diseases; it has mostly done away with the dangers of scourges and plagues; it is making such rapid progress that miraculous discoveries soon appear commonplace in the light of new discoveries. But preventive medicine has a still greater sociological mission to perform. It must teach the lesson that a normal life, in which sufficient leisure and repose alternate with bustle and hard work, is far more to be desired than riches and exaggerated pleasures which are abnormal. Such a knowledge of how to live normally, once attained and wisely followed, would go the longest possible way in diminishing the labors of medicine.

MONTHLY BULLETIN OF THE AMERICAN IRON AND STEEL INSTITUTE.

We have received the first two numbers of the *Monthly Bulletin of the American Iron and Steel Institute*, which will appear, as the title specifies, every month, and which is given over to "articles on iron and steel statistics, and the improvements of methods of producing iron and steel, on the promotion of health and safety among the employees

in mines and mills, and generally to serve as the magazine of the institute." It is not long since our great American industries have seen the necessity for protecting the health and lives of their employees. Foremost along these industries are the great iron and steel companies, and they have founded the American Iron and Steel Institute. We find that the large plants of the corporation are beautified so as to make the working place of the laborer as healthful as possible, and at the same time protect him against the dangers of his trade by appropriate warnings, using, when advisable, the native tongue of each man. Here also it has been found that prophylaxis properly applied is the best protection. An article by Dr. Thomas Darlington describes the work laid out for the trained nurse among the men and their families; we see her attending the injured laborer, his wife in confinement, his child in sickness, giving instruction in cooking and nursing, etc. The example set by the institute seems to be a very praiseworthy one.

LABOR UNIONS AND MEDICINE.

In the *British Medical Journal* for March 15, 1913, a letter from a practitioner, A. George Bateman, states that rumors have been heard of the possible establishment of a "trades union" or labor union among members of the medical profession. The writer points out the absurdity of such allegations. As he observes, the advantages of a labor union over its members are its authority to issue orders for a strike and the prevention by "picketing" of the entrance of blacklegs or "scabs" into the strike; and he asks how it could possibly be contended for a moment that either of these powers could be used by educated professional men exercising the healing art and carrying on medical practice. Could the wildest imagination conceive an order emanating from the central office of a medical labor union ordering all members to cease at a given time the care of and attendance upon patients suffering from all forms of disease? Any unity founded on labor union lines, concludes Mr. Bateman, would be degrading and derogatory to professional men in the extreme, and he hopes that the suggestion will be scouted and dismissed as utterly untenable.

RESPIRATORY GYMNASTICS IN CONSTIPATION.

At a meeting of the Société de l'internat des hôpitaux de Paris on February 27th, Froussard drew attention to the fact that for some years kineotherapy had assumed a prominent rôle in the treatment of habitual constipation; this was logical, since debility of the muscles of the abdominal cavity always accompanied this condition. Among these muscles, continued Froussard, according to *Presse médicale* for March 8, 1913, the diaphragm was one of the most important, although we were accustomed to consider it to be solely a respiratory muscle. Its movements, together with those of the abdominal parietes, acted not only on the move-

ments of the intestinal folds, but on the gases within, and this gaseous circulation was the cause of peristalsis. A moment's reflection would show the importance of the diaphragm in the act of defecation. The speaker recommended, therefore, to the constipated subject, a series of deep respiratory movements just before going to the closet, alternated with movements of effort to defecate, and he observed that Chalauditi, Aubourg, and Rosenthal had also approved of this procedure.

THE PHENOMENA FOLLOWING HYPODERMIC INJECTIONS.

The hypodermic injection of distilled water alone produces very remarkable results. Our readers are familiar with Schleich's method of inducing anesthesia in this manner, and now an English practitioner, G. Arbour Stephens, asks, in a letter to the *Lancet* for March 15, 1913, that physicians test, and if possible corroborate some very good curative results he has had in the treatment of syphilis, by the injection, every third day, of six to eight c. c. of distilled water into the subcutaneous tissue of the back. After three doses all the patients looked and felt much better and their ulcers appeared very much cleaner. After each dose the temperature showed a rise supposed to be characteristic of vaccine treatment. In three weeks, Mr. Stephens had very gratifying results in ulcers of the cheek and leg and in rupia with abscesses threatening to break. No other treatment was used.

Taking into consideration the curious results obtained in tuberculosis by the hypodermic injection of various agents, along with the experiments of Mr. Stephens, both the physical and the psychic effects of such injections seem to deserve further study.

Obituary.

ALGERNON T. BRISTOW, M. D.,
of New York.

Doctor Bristow died at his home, 234 Clinton Street, Brooklyn, on March 26th, of septichemia following a scratch on the finger, received while operating two weeks before. The most energetic treatment, including the early use of vaccines, failed to avert the fatal outcome. Doctor Bristow was born in Richmond, England, November 29, 1851, and came to the United States in his fourth year, when he began his education in the public schools. Subsequently he attended the Polytechnic Institute, graduated from Yale in 1873, and from the College of Physicians and Surgeons, New York, in 1876. He had been vice-president of the Academy of Medicine, president of the Kings County Medical Society, professor and visiting surgeon at the Long Island College Hospital, visiting surgeon to the Kings County Hospital and St. John's Hospital, and consulting surgeon to the Long Island State Hospital, the Swedish Hospital, and the Bushwick Hospital. Doctor Bristow was editor of the

New York State Journal of Medicine and a prolific contributor to other medical publications, including the *NEW YORK MEDICAL JOURNAL*, his latest article on National Medical Insurance as Affecting the Doctor appearing in our issue for January 4th last. He is survived by a widow and two daughters.

News Items.

Changes of Address.—Dr. Wm. H. Veenboer to 110-116 Fulton Street, East, opposite Fulton Street Park, Grand Rapids, Mich.

Dr. Isadore C. Goldstein from the Fango Institute, New York, to the Sanatorium, Sharon Springs, N. Y.

Gross Lecture at Jefferson Medical College.—The Samuel D. Gross Lecture for the session 1912-1913 was delivered at Jefferson Medical College, Philadelphia, by Dr. William L. Rodman, on Friday evening, March 28th.

South Scranton Physicians' Association.—At the annual meeting of this association, held on the evening of February 27th, the following officers were elected: President, Dr. M. H. Quinn; vice-president, Dr. J. L. Sallade; secretary-treasurer, Dr. Grace McMahon.

Harvey Society Lectures.—The last lecture in the series will be delivered on the evening of March 29th, at the New York Academy of Medicine, by Professor John Howland, of Johns Hopkins University, on the Scientific Basis for the Artificial Feeding of Infants.

Medical Inspection of Druggists and Grocers.—In a bill which has been introduced by Mr. Deering into the Oklahoma legislature, health officials are empowered to require medical inspection of all handlers of foods and drugs where the presence of contagious, infectious, or loathsome disease is suspected.

Jefferson Hospital Clinical Society.—At the annual meeting of this society, held at Jefferson Hospital on the evening of March 21st, the following officers were elected to serve for the ensuing year: President, Dr. Francis T. Stewart; vice-president, D. E. Q. Thornton; treasurer, Dr. C. D. Smith; secretary, Dr. E. H. Funk.

Medical Association of the State of Alabama.—The annual meeting of this association will be held in Mobile on April 15th, 16th, and 17th, under the presidency of Dr. Harry T. Inge. Dr. J. N. Baker, of Montgomery, is secretary of the association, and Dr. P. J. M. Acker, of Mobile, is chairman of the local committee of arrangements.

Rush Lecture at the University of Pennsylvania.—The fourth Rush Lecture will be given in the new medical laboratories of the University of Pennsylvania on Wednesday afternoon, April 2d, at four o'clock, by Professor W. B. Cannon, of Harvard University. His subject will be *Some Studies on the Bodily Effects of Fear and Rage*.

Weir Mitchell Lecture.—Professor H. P. Armsby, of the Institute of Animal Nutrition of the College of Physicians of Philadelphia, will deliver the next Weir Mitchell Lecture in Mitchell Hall, College of Physicians, on the evening of April 4th. The subject of his lecture is *Animal Calorimeters and the Study of Nutrition*. All physicians and others interested are invited to attend.

Meetings of Medical Societies to be Held in Philadelphia during the Coming Week.—Tuesday, Board of Directors of the Aid Association of the County Medical Society, Physicians' Motor Club Smoker, and Medical Examiners' Association; Wednesday, Board of Directors of the Physicians' Motor Club and the College of Physicians; Thursday, Obstetrical Society; Friday, Kensington and Southeast Branches of the County Medical Society.

Dental Clinics for New York School Children.—Six new dental clinics for school children were opened on March 25th by the department of health. The 1913 budget authorized the employment of one supervising dentist and nine staff dentists. Of the six clinics two are in Manhattan, three are in Brooklyn, and one is in The Bronx. Up to the opening of these clinics there was only one for all the boroughs. Of the present registration of 700,000 children it is estimated that 420,000 are in urgent need of dental treatment.

Association of American Medical Colleges.—At the recent annual meeting of this association, held in Chicago, the following officers were elected: President, Dr. E. P. Lyon, St. Louis University; vice-president, Dr. F. F. Westbrook, University of Minnesota; secretary-treasurer, Dr. F. C. Zapple, University of Illinois.

New Building for Sydenham Hospital.—Plans are being prepared for a new building for Sydenham Hospital, to be erected on the present site of the institution in East 116th Street. The proposed building, which will contain 200 beds, will cost \$350,000. Mr. Isaac Guggenheim has given \$100,000 toward the building fund, with the stipulation that the hospital remain nonsectarian, and the directors have promised to raise the additional \$250,000.

Walker Cocaine Bill Condemned.—The bill drafted in the district attorney's office to regulate the traffic in cocaine, and introduced into the New York legislature by Assemblyman Walker, was severely condemned by several speakers at a meeting of the Medical Society of the County of New York on Monday evening, March 24th. Resolutions condemning the measure were proposed, but did not come to vote, the president appointing a committee to confer with the assistant district attorney regarding proposed modifications of the measure. This committee will report to a special meeting of the society to be held on March 27th. The assistant district attorney has agreed to await action by the society before pressing the passage of the measure.

American Society of Medical Sociology.—A meeting of the American Society of Medical Sociology will be held on Saturday, March 29th, 8:45 p. m., at the residence of Dr. William J. Robinson, 12 Mt. Morris Park West. The Problem of the Prevention of Conception and the Best Means to Bring about the Repeal of the State and Federal Laws against It will be the topic of the evening and ten ten minute papers will be read by physicians and sociologists, dealing with this important question, including Dr. William J. Robinson, Dr. James P. Warbasse, Dr. H. Edwin Lewis, Dr. I. L. Nascher, Mrs. Anita C. Block, Mrs. Clara G. Stillman, Mr. Edwin C. Walker, Mr. James F. Morton, Jr., and Mr. I. Balch Lewis.

The Glasgow Lister Ward and Museum.—As a memorial to the late Lord Lister, and as a means of perpetuating his memory in a way that it is hoped will prove both interesting and instructive to every member of the medical profession for all time to come, one of the wards in the Royal Infirmary, Glasgow, in which he worked out and first put into practice the principles of antiseptic surgery, is to be reserved and utilized in the following way: One part of the ward is to be refurnished as it was in his time with such objects as it may be possible to acquire; while the other part is to be made into a museum for the exhibition of anything associated with his life and work. It is, therefore, asked that any who may have letters, pamphlets, books, or other objects of direct personal association with Lister and his work will either present or loan them to the museum. Professor John H. Teacher, M.D., curator of the Museum, will be pleased to receive any objects addressed to him at the Royal Infirmary, Glasgow, Scotland. The names of all donors or senders of objects are to be affixed to the exhibits.

Protest against Recent Ruling of Health Department Regarding Venereal Diseases.—The Committee on Medical Economics of the Medical Society of the Borough of the Bronx has sent to Mayor Gaynor a vigorous protest against the recent direction and order of the Health Department of the City of New York to certain hospitals in the city, requiring such institutions to record in the department the names and addresses of all patients suffering from venereal diseases, and, if possible, the names and addresses of all persons supposed to be sources of infection. Several reasons are given for their objection to the ruling, the principal one being that all knowledge of such cases obtained through professional media is confidential and privileged and should not be recorded, even in private practice, except as records of disease, and it is believed that the protection of such records in the health department would be impossible. Dr. Isaac M. Heller is president of the society, Dr. John J. Decker is secretary, and the Committee on Medical Economics is composed of the following members: Dr. William S. Gottheil, Dr. John A. Cutter, Dr. William H. Kahrs, Dr. Harry Aranow, and Dr. J. A. McNevins.

Official Investigation of Doctor Friedmann's Treatment for Tuberculosis.—The following statement has been made by the United States Public Service regarding its investigation of the Friedmann treatment for tuberculosis: On March 8th the Secretary of the Treasury, on the recommendation of the surgeon general of the Public Health Service, caused a board of medical officers to be detailed to make a thorough investigation of Doctor Friedmann's alleged cure for tuberculosis. These officers proceeded immediately to New York and arranged with Doctor Friedmann for demonstrations of his remedy upon persons suffering from tuberculosis. These demonstrations are being carried on in certain New York hospitals through the courtesy of their respective authorities, and will be continued until sufficient information has been obtained for the forming of an opinion as to the merits of the treatment. Doctor Friedmann has submitted to the board a culture of the bacteria which, he states, are used in his method of treatment. In addition to the observation of persons under treatment by Doctor Friedmann, the board of officers will make experiments to ascertain whether this culture is, as Doctor Friedmann asserts, harmless to warm blooded animals. Considerable time will necessarily be required to carry out these investigations. The work will be carried on as rapidly as possible. In the meantime the public is informed of the inadvisability of tuberculous patients traveling long distances in the hope of receiving the treatment. Those to whom it is administered for demonstration purposes are selected by the hospital authorities from among their patients; the number selected constituting only a small proportion of available volunteers. Certain statements purporting to be expressions of the opinion of the board of officers of the Public Health Service carrying on the investigation have appeared in the newspapers. These officers have expressed no opinion and will not be in position to do so until the work has advanced sufficiently far to warrant some conclusion in regard to Doctor Friedmann's treatment.

Fund for Social Welfare Work.—Announcement is made that Mrs. Elizabeth Milbank Anderson has given \$650,000 to the New York Association for Improving the Condition of the Poor, for the establishment of a department of social welfare to conduct experimental laboratories for the purpose of demonstrating the practicability of preventive and constructive measures, in order that they may be adopted by the municipality and other civic and social agencies. This fund will be known as the Milbank Memorial Gift. The new department will be under the direction of a board of managers, and will be entirely free from all A. I. C. P. activities, no part of the fund to be used for relief or fresh air work of any kind. The work of the proposed Department of Social Welfare will be carried on by three committees, as follows: Committee of Public Health and Hygiene, Committee on the Welfare of School Children, and Committee on Food Supply. The Committee on Public Health will continue the public bath work which the association started in 1891, cooperating with the city in endeavoring to increase the popularity of the public bathing facilities throughout the city. An allied activity will be an educational campaign for the extermination of common disease carriers. The Committee on the Welfare of School Children will investigate the ventilation of school buildings and other public buildings, a committee of experts to be appointed for research and experimental work; it will also aid the School Lunch Committee in the work of serving hot lunches to school children. The problem of extending and improving the present system of medical inspection of school children, and of increasing the clinical facilities for the treatment of physical defects of school children, especially of the teeth, will be taken up by the committee in cooperation with existing agencies. More sanitary methods of cleaning school rooms and of providing sanitary drinking fountains also will be considered by the committee. The programme of the Committee on Food Supply so far as it has been outlined includes an investigation concerning the scientific production of various articles of food, its purchase in larger quantities, its scientific storage, its efficient and honest handling, and the latest facts as to relative food values. The object of this inquiry will be to ascertain how the cost of food can be reduced to the consumer and its nourishing qualities increased.

Pith of Progressive Literature.

MEDIZINISCHE KLINIK.

January 5, 1913.

Nystagmus retractorius, a Localized Cerebral Symptom.—Elsching arrives at the conclusion that this symptom, consisting of a slight retraction of the bulbi with increased convergence, but without contraction of the pupils, is caused by a cumulative neurosis of all the external muscles of the eye and depends upon diffuse pressure on the nuclei of the nerves controlling the muscles and their connecting fibres, i. e., a foreign body at the entrance of the aqueduct of Sylvius. The author is not certain whether hemorrhage into the aqueduct of the third ventricle can produce this symptom.

Rapid Opening into the Larynx in Cases of Urgent Asphyxia.—Denker says that from his post mortem examinations and experiences on the living, intercricothyrotomy is an easily executed and safe procedure which may be employed as a preliminary to other operations and a life saving device in many instances. A set of instruments sterilized for performing an intercricothyrotomy should be held in readiness and is of much more importance than a tracheotomy set.

January 12, 1913.

Migraine, Symptoms, Causes, Nature; Migraine and the Sexual Life.—Caeser's interesting article details the symptom triad of migraine, specific headache, gastric and psychic disturbance. Sympathetic symptoms are: 1. Hemicrania spastica, a sympathetic cramp, and, 2, hemicrania angio-paralytica, due to a sympathetic paresis. The first is characterized by pallor and coldness of the face, dilatation of the pupils, thickening of the temporal arteries, and salivation; the second by redness of the face, injection of the conjunctiva, epiphora, narrowing of the palpebral aperture and pupils, and unilateral sweating. The latest statistics show that disturbances of vision, found in twelve per cent. of the cases, are of two types, parietic and visual. As to irritations of the cranial nerves the trigeminus holds first place. The most important factors in the causation of the attack are the sexual incidents, namely, menstruation and ovulation in the female. The author discusses the various theories of the irritations of the cortex, plexus chorioideus or hypertrophied hypophysis, increased cerebrospinal fluid, etc.; also, the sympathetic theory, i. e., paresis or spasm of the bloodvessel, reflex irritation from the stomach, eyes, etc. Poor function of the endocrine glands is the main cause of the migraine, and, more specifically, the affliction is conditioned by disturbance of the ovary. The weakened activity or complete cessation of this organ influences the headache tendency favorably, while a hyperfunction or painful function is the most important factor clinically. The practical therapeutic significance of this is that in a positive case of migraine which has resisted all treatment, sterilization of the patient should be tried, particularly in elderly unmarried women or married women who have borne a number of children. This may be ac-

complished by the Röntgen ray and does not require operation.

January 19, 1913.

Treatment of Peritonitis.—Schepelman's experiments on animals proved the following: By preparatory treatment of the peritoneum with lime water, its bactericidal action influences the course of the peritonitis in a favorable way, not sufficiently, however, to employ it for practical purposes. By the intraperitoneal injection of homogenous animal blood the formation of abdominal pus is neither encouraged, improved, nor prevented. The injection of heterogenous animal blood is decidedly damaging. The great disadvantage in these blood injections is the formation of adhesions.

Arsentriferrol.—C. A. Ewald gave arsentriferrol, first prepared by von Salkowski, a thorough clinical test, especially as to its acceptability by the organism in cases of gastric and duodenal tumors. In contradistinction to other iron preparations, arsentriferrol gave good results in all twenty-eight cases. In only two cases its administration was discontinued because of the production of pain. In all the others it was well borne and produced an improvement in the blood picture. In some cases of achylia gastrica and in carcinoma ventriculi an increase in the hemoglobin content was obtained. In the case of a man with acute anemia from hemorrhoidal hemorrhage, the increase in hemoglobin was considerable. This preparation, which has been considered of doubtful value, may, according to these experiments of the author, be highly recommended.

Right Ventricle of Heart and Sport.—Grober had occasion to examine the participants in a competitive manœuvre before and after the exercises. In only five out of the twenty-five were no changes observed. Two of these were trained soldiers and two were vegetarians. Slight changes, broadening of the heart to the right, decreases in the motility, and expansibility of the lower borders of the lung were observed in four. Actual and important changes were seen in the majority (sixteen), namely, marked dilatation of the right heart, irregularity of the heart action, heart murmurs, collapse, etc. These serious changes, though only temporary, show that in such tests only trained and bodily sound individuals should take part.

January 26, 1913.

Adamon, a Substitute for Valerian in Solid Form.—H. Gudden summarizes his article thus: Adamon furnishes a harmless, effective sedative, the first practical substitute for valerian in solid form which makes possible a course of treatment of long duration, because of its tastelessness and because it does not affect the gastrointestinal tract. The choice of the name is also a happy one, since it does not arouse suspicion of bromides or valerian, a fact which should not be undervalued for patients who have been saturated with either, and demand a new sedative.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

February 1, 1913.

Value of Pituitary Extract in Hebosteotomy (Pubiectomy).—Linzenmeier reports two cases of contracted pelvis in which pituitary extract was given and pubiectomy subsequently performed. In

both instances the child lived and no serious injury was done to the mother. The author believes that this procedure may be employed in place of Cæsarean section.

Pituitary Extract in Prolonged Gestation.—Stolper reports two cases in which the date for delivery had been passed. Pituitary extract was given, but in both instances the first injection had no effect. In one instance, after waiting seven hours, a second injection was given, this being followed by the delivery of the child a little more than an hour later. In the second case four injections were given before spontaneous delivery occurred. The author did not notice any abnormal conditions as a result of giving so much pituitary substance, but recommends that both mother and child be carefully watched, particular attention to be paid to the heart action of the infant.

Has Pituitary Extract a Harmful Effect on the Child?—Spaeth briefly mentions some cases by other observers in which harmful effects appear to have been exerted. He then gives an instance of his own, where the child died a half hour after birth. In this individual the heart beat was visible, but very slow. The autopsy showed nothing positive. The death was evidently due to action upon the heart muscle.

February 8, 1913.

Can Eclampsia be Cured by Injections into the Spinal Canal?—Rissmann does not believe in the placental theory of the origin of the poisons elaborated during pregnancy. He holds that in eclampsia there are injuries done to the brain and cord. In the case reported he injected five c. c. of a sterile fifteen per cent. solution of magnesium sulphate, intradurally. The patient was unconscious and had had some twelve convulsions. Following the injection no further attacks occurred, and in the course of three days the patient completely recovered.

Treatment of Eclampsia.—Putz gives a brief presentation of forty-five cases of eclampsia coming to his notice. He states that immediate delivery is brought on only in those which are considered severe cases, such as present a very rapid and small pulse, slight amount of urine, and stupor.

February 15, 1913.

Biological Diagnosis of Pregnancy.—Petri makes a five per cent. solution of a peptone, obtained from the placenta, in distilled water, and adds one c. c. of this to one c. c. of the serum of a pregnant woman. The control consists of using a mixture made with the serum of a nonpregnant woman. These are placed in the chamber of a polaroscope, put in an oven at 37° C., and examined hourly. No change is observed in the nonpregnant, but in the other there is a marked effect, due to the action of a ferment in the serum of the pregnant woman upon the placental peptone. Basing his conclusions upon work of Abderhalden, the author believes that it may be possible to make a diagnosis of pregnancy within the first day after the fertilization of the ovum.

February 22, 1913.

Hematometra at the Age of Eighty Years.—Ottow briefly reviews the matter and then reports a case under his observation. The patient gave a

history of the sudden escape of very large quantity of blood. Examination showed the presence of a carcinoma of the uterus with atresia of the cervix. When the carcinoma had infiltrated the uterine wall sufficiently to cause a point of weakness, it ruptured and allowed the retained blood to escape.

CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND PATHOLOGISCHE ANATOMIE.

February 15, 1913.

Coagulation of Blood during the Death Agony.

—Franz Rost, on account of its importance from a medicolegal point of view, undertook to determine whether the clots found at autopsy were formed before or after death. As a result of his experiments he concludes that many of these coagula must have formed during the agonal period.

February 28, 1913.

Colloid Retention in Circumscribed Goitre.—Monogenov, from studying specimens that had been injected with Berlin blue, believes that in struma nodosa there is a retention of colloid material. This condition is due to a lack of normal lymph vessels or to an incomplete union of the lymph spaces with the lymphatic system of the adjacent tissues.

ZEITSCHRIFT FÜR AUGENHEILKUNDE

February, 1913.

Vision and Shooting.—Fernand Cuny has studied the vision and shooting ability among the German soldiers, and finds that those who wear glasses prove on the average to be better marksmen than those who do not. Very slight impairments of vision have marked influence on the result.

Treatment of Choked Disc, Especially when Due to Tumor of the Brain, by Palliative Trephining, with Temporary Exocranial Drainage of One of the Lateral Ventricles.—Kaelin-Benziger maintains that the positive diagnosis of a bilateral choked disc furnishes an unconditional indication for the surgical relief of the pressure on the brain. The farther the injury to the optic nerves has advanced the worse is the prognosis for the preservation or the improvement of their functional power by the operation. Spontaneous recovery is rare and should not be taken into account, because there is no diagnostic criterion that justifies a hope for its occurrence; hence expectant treatment is to be condemned. As the cause of the choked disc cannot be removed in most cases of tumor cerebri, and as it is impossible to enlarge the physiological avenues of escape for the liquor cerebri, the only therapeutic means at our disposal are either a new permanent avenue of escape for the fluid, or a permanent enlargement of the cavity occupied by the brain. As a solid tumor is often complicated by a hydrocephalus of the ventricle, it is well to combine exocranial and endocranial drainage with trephining. Exocranial drainage for from eight to twelve days serves two purposes: It lessens the danger of prolapse of the brain, and enables us to ascertain the properties of the contents of the ventricle. Endocranial drainage of the arachnoid space, on the contrary, needs to be permanent. A permanent and sufficient enlarge-

ment of the cavity occupied by the brain and a permanent endocranial drainage cannot be made without removal of bone from the skull together with the periosteum, and division of the dura. Simple trephining suffices only in very rare cases. The aperture should be made in the parietal region. Lumbar puncture should be reserved for suitable cases of papillitis of syphilitic origin, of serous meningitis, and of chronic interstitial nephritis in which decompression is contraindicated, and should be performed either by itself or in combination with medicamentous treatment. Therapeutic decisions should be guided in every case by the ophthalmoscopic condition of the choked disc, the reduction of which is to be attained under all circumstances.

PRESSE MÉDICALE.

February 22, 1913.

Subcutaneous Injections of Hexamethylenamine in the Treatment of Typhoid Fever.—H. Triboulet and F. Lévy studied in particular the urinary changes produced by this drug. In children over six years of age they gave initial doses of 0.4 gramme morning and evening, then increased the amount until four, five, or six grammes were being given daily, in two doses. A forty per cent. solution was used, either sterilized by exposure to 60° C. for twenty minutes or prepared simply by dissolving the compound in sterile water. They give detailed records of three cases; all were bathed in addition to the hexamethylenamine treatment. In the first case no abnormality in the urine could be detected; in the other two the drug caused the appearance of vesical epithelium and of pseudoalbumin in the urine, with a mere trace of serum albumin. Later erythrocytes and globulin were eliminated, but serum albumin was barely perceptible. No bladder pain or tenesmus were noted. The transitory urinary changes are attributed by the authors to vesical irritation alone, the kidneys remaining unaffected. The injections were productive of greater benefit than hexamethylenamine taken by mouth, the tongue becoming moist, adynamia disappearing, diarrhoea being reduced, and the urine rendered more dilute. Fever was not of more than three weeks' duration in either case. Large doses of the drug could probably also be used with benefit and without danger in septic states, especially those with elimination of bacilli in the bile and with infectious enteritis.

SEMAINE MÉDICALE.

February 26, 1913.

Supracondylar Fracture in the Atrophied Femur.—F. Lejars states that while cases of supracondylar fracture from relatively slight traumatism in the presence of bone atrophy have so far been reported only in children subjected to prolonged immobilization because of coxalgia or congenital hip dislocation, the same sort of accident may occur in adults. In one case he reports, that of a young man who had "white swelling" of the knee, terminating in ankylosis, the fracture was caused by a misstep in walking; in another case, that of a man forty-two years of age, previously treated for pseudoarthritis of the right tibia, the fracture occurred while the patient was getting into a carriage. The supracondylar portion of the femur is the seat

of election of "fractures by inactivity." Brandes has shown experimentally in guineapigs the extreme rapidity with which the os calcis atrophies—two to five weeks—after section of the tendo Achillis. The lesson to be drawn from these facts is that during immobilization the bones in certain areas rapidly lose their strength, and a corresponding degree of care should be exercised in the performance of active and passive movements in these cases. It seems surprising, at first sight, that the fractures occurring in atrophied bones generally heal without any difficulty.

REVUE DE CHIRURGIE

February, 1913.

Relations of Motor Branch of Radial Nerve to the Radiohumeral Joint and Their Bearing upon the Surgery of the Elbow.—O. Jacob asserts that in operations on the posterolateral aspect of the elbow the motor division of the radius is not rarely injured, with resulting paralysis of the extensors and abductors of the hand. He has seen three such cases, in which the operations performed were, respectively, resection of the elbow through Kocher's incision, removal of the upper extremity of the radius, and arthrotomy of the elbow joint for suppurative arthritis. Studying the anatomical relations of the nerve in twenty cadavers, in order to ascertain the limit of safety as regards incisions in this region, the author found that these relations vary according to whether the forearm is in complete pronation or supination. In the former case no incision should extend below an oblique line drawn from a point on the external aspect of the radius four cm. below the radiohumeral joint to a point on the posterior aspect of the same bone, six cm. below the joint. With the forearm in supination, on the other hand, two and four cm. are to be substituted, respectively, for the distances just named.

Separation of the Tibia and Fibula in Fractures above the Ankle.—Clermont discusses this question at great length, and presents x ray reproductions illustrating the relations of the bones as he has found them in these cases. He points out that separation of the tibia and fibula may occur without tearing of the ligaments, by reason of fracture of the lower extremities of the bones, and conversely, has observed clinically that the ligaments may be torn off without separation of the bones resulting. No indirect fracture of the fibula can occur without a certain degree of mobilization of the lower end of the fibula, and to this loosening of the parts the general term "tibiofibular disjunction" may be applied. The necessary mobilization may be brought about either through combined rupture of the anterior, interosseous, and posterior ligaments, or of the first and last of these singly, or may occur through the splitting off of anterior or posterior fragments from the fibula or anterior, external, or posterior fragments from the tibia. Clermont would classify fractures in this region into those unaccompanied by disjunction, those in which the fracture gives rise to disjunction, and those in which disjunction is the cause of the fracture. Stereoscopic x ray views should be taken in examining these cases.

Changes Observed in the Thyroid Gland as the Result of Various Experimental and Clinical Conditions.—E. Martini reports the results of histological study of the thyroid in dogs, from which various other internal secretory glands had been removed and in human subjects who had succumbed to various infections. In operating on the dogs, a small section of thyroid was always taken in order to supply a firm basis for comparison of the condition of this organ before and after the intervention. Partial removal of the pancreas, or removal of one suprarenal body, kidney, or testicle was found to have no effect on the thyroid. Total pancreatectomy or bilateral adrenalectomy or nephrectomy, however, led to histological changes indicating increased function of the thyroid; removal of both testicles or of the spleen resulted in similar but less marked changes, the toxemia to be counteracted by the thyroid after these procedures apparently being less. In the thyroids taken from ten human subjects who died of pneumonia, indications of increased functional activity were found; in ten typhoid fever cases increased function was also evident, but there were already distinct retrogressive changes in addition, doubtless owing to the greater duration of the disease. In ten cadavers of chronic pulmonary tuberculosis cases the thyroids showed both sclerotic and atrophic changes and proliferation of the residual functioning cells. Finally, in ten cases of cancer the changes were similar to those in the tuberculous cases, but less marked, both as to sclerosis and epithelial proliferation. All the cadavers examined were of patients between the ages of twenty-five and forty-five years. The conclusion reached was that whereas at the start of infectious processes the thyroid reacts as an antitoxic organ, the prolonged presence of toxic substances induces retrograde pathological changes.

REVUE DE MÉDECINE

February, 1913.

Acute Dehydration of Toxic Origin.—Marcel Labbé reports a case in which continued vomiting and diarrhea, apparently due to some toxic factor the nature of which could not be discovered, resulted in a loss of twenty-four kilogrammes in weight in a period of two weeks. Purpura, edema of the extremities, and albuminuria were simultaneously present, but there was no fever. It was estimated that thirty-five per cent. of the water previously present in the system had been lost—a degree of dehydration not attained even in cholera or by deprivation of fluids. Extreme muscular tenderness was a prominent symptom. Stress is laid on the fact that there was no tendency to coma or acidosis. This shows that, as already asserted by Chauffard, acute dehydration in diabetic coma is a secondary phenomenon, and does not in itself bring on the coma; likewise, that inanition, clearly manifest in the author's case, is not sufficient in itself to bring on acidosis.

Resorption of Ascitic Fluid in a Case Subjected to Autoserotherapy.—G. Vitry and A. Sézary present the history of an undoubted case of cirrhosis, with diminished size of the liver, splenic enlargement, prominent collateral circulation, and positive methylene blue test, in which auto-sero-

therapy and other measures led to rapid absorption of an ascitic accumulation of six months' standing. The patient was put to bed and given three pints of milk a day. Upon administering one gramme of theobromine the elimination of urine rose slightly. A week later, subcutaneous injections of ten c. c. of ascitic fluid were started, and thereafter continued on alternate days. On the third day a free flow of urine set in, with the result that eleven days later the ascites had disappeared and autoserotherapy was necessarily discontinued. The urine during this period showed both an absolute and a relative increase in sodium chloride—a fact apparently of considerable significance in relation to the favorable results obtained. The urinary acidity was simultaneously lessened, owing to the elimination of the alkaline ascitic fluid. The patient was subsequently given saltfree food, then placed on a careful chloride-containing diet, with the result that ascites and the symptoms due to portal congestion have not returned.

Elimination of Chlorides in Simple Polyuria.—J. Goldberg and R. Hertz point out that the rôle played by the kidneys in simple polyuria is not as yet clear. Some, including Meyer, believe the essential cause of the condition to be an inability on the part of these organs to maintain a normal degree of concentration in the urine, while others assert that this is by no means true of all cases. The authors, in studying the question, made hourly estimations of the sodium chloride concentration in three cases, two of independent, simple polyuria, and one in which the condition appeared in some way related to syphilis. Administration of sodium chloride to these patients caused an increase both in the quantity of the urine and its saline concentration, thus showing that the concentrating power of the kidneys was at least partly retained. Ten gramme doses of sodium bicarbonate were found always to lower the urinary saline concentration, both in these patients and in normal subjects; these findings agree with those of Widai, who observed a decrease in the elimination of salt, with tendency to edema, in diabetics to whom large doses of the bicarbonate were given.

New Views Concerning Diabetes.—A Rodriguez finds that the concentration of chlorides in the urine of diabetes is nearly always increased, and bears a close relationship to the degree of glycosuria. He believes excessive ingestion of chlorides to be a factor in many cases of glycosuria, and has obtained good results in a number of patients with a diet, free of or poor in salt, but rich in carbohydrates.

BRITISH MEDICAL JOURNAL.

March 1, 1913.

Intramural Spread of Rectal Carcinoma.—Percival P. Cole analyzes the material from twenty cases and concludes that the spread of the lesion is by way of the lymphatic channels. There is a plexus of lymphatic vessels between the two muscular coats, the vessels of which run in a circular direction. It is suggested that this plexus is largely responsible for the circular distribution of the lesion in the rectum. This plexus empties into larger vessels which form toward the mesenteric

side of the gut, and it is usually observed that carcinoma fails to involve a narrow zone corresponding to the area between the vessels of either side as they pass from the intestine to the mesenteric glands. The size of the ulcer in rectum carcinoma is no indication of the extent of involvement, and in every case in the series the growth had spread to the tissues outside of the bowel wall.

Afterhistory of Gastroenterostomy for Peptic Ulcer.—Aleck W. Bourne traced sixty-eight patients who had suffered from peptic ulcer and who had had gastroenterostomy performed for its relief. He summarizes his findings thus: 1. The results of the operation are generally either excellent cures, or complete failures. 2. The immediate mortality of ninety-two cases was 7.6 per cent., but of the last fifty-three cases it was nil. 3. The general results are, forty-three per cent. excellent, and thirty-eight per cent. bad. 4. Prognosis is much better when the patient is over forty. 5. Of males sixty-nine per cent. are cured, twenty-eight per cent. of females are not improved. 6. The duration of symptoms is of no assistance in predicting the result of operation. 7. The length of time elapsing between a meal and the onset of pain is of great importance; the longer it is the better the outlook. 8. Duodenal ulcers yield very much better results than gastric ulcers; the latter give thirty-eight per cent. of cures, the former seventy per cent. 9. Cases of pyloric stenosis give the best results. 10. The degree of hyperchlorhydria is important, cases having an acidity of over 0.2 per cent. (total acidity) do well, those with normal acidity do badly. 11. The improvement effected by the operation is probably due to the relief of dilatation, pyloric spasm, and hyperacidity by drainage. 12. Failures may follow the closure of the anastomosis. 13. The position of the anastomotic opening on the posterior wall of the stomach may be of great importance. 14. Failures may be due to, a, recurrence, or failure of the ulcer to heal; b, formation of jejunal ulcer. Apparent relapses, a, adhesions, causing pain, vomiting, etc.; b, carcinomatous degeneration. 15. Patients in whom no ulcer is found at operation do badly.

March 8, 1913.

Certain Physical Signs of Myocardial Involvement.—Thomas Lewis records the observation of acute and subacute heart block in a number of rheumatic cases. This phenomenon occurred not infrequently in the absence of all other signs of cardiac involvement. In many of the cases it was present only during the acute stage of the disease, and in most it disappeared, for a time at least. Similar findings have been recorded in cases of influenza, infection of the bladder by a coliform organism, and in diphtheria. In some of the cases death resulted from other causes while the condition was recent and in others only after it had become old. In all there have been demonstrable signs of myocardial invasion which was so located as to include in its damage the bundle of His. In another case only one of the branches of the bundle was involved. This cannot be diagnosticated by any means except the electrocardiograph, but it serves to carry the argument farther, to the effect that acute or subacute heart block is an early, and often the only, indica-

tion of myocardial disease. In many instances this myocardial involvement progresses by recurrent exacerbations eventually to become chronic and often to lead to the death of the patient. While this form of heart block may not be an infallible sign of general myocardial disease, it is certain that it is often an indication of invasion when other signs are absent.

Manifestations of a Healthy Heart.—W. Bezly Thorne does not accept the views of James Mackenzie regarding certain types of irregularities of pulse rate and the presence of functional murmurs. On the contrary, he believes that they point to two defects; an inactive tunica media of the arteries and a consequent deficiency of recoil and vascular conductivity; and an actual defect of myocardial energy, the importance of which is relatively aggravated by the fact of the central organ being called on to perform a considerable part of the work which should be carried out by the arterial heart. The signs and symptoms are a dicrotic, empty pulse, an undue degree of postural tachycardia, functional murmurs which tend to subside in the erect position, irregularity of the pulse, and dilatation of the pupil. The result is a general impairment of power and efficiency and an inability to bear strain, either mental or physical.

The Auricle in Mitral Stenosis.—D. W. Samways believes that the complex series of murmurs heard during the course of a case of mitral stenosis can be easily and naturally explained if it is granted that the contraction of the auricle may not cease when that of the ventricle begins, but may continue for a longer or shorter period to overlap it. In this lesion it would take longer for the auricle to expel its blood through the small orifice than normally, and if the auricle can prolong its contraction into ventriculosystolic time the following results would appear: 1. The presystolic murmur would go up to and into the first sound, and would not even necessarily stop with the advent of the first sound, for it has been shown that the power of the contracting auricle varies roughly inversely with the cube of its diameter. This would make possible a condition in which the power of the auricle was greater than that of the distended ventricle. 2. A systolic murmur might be absent for years, though the mitral valve was incompetent, owing to the greater power of the small auricle contracting against the filled ventricle and preventing regurgitation. 3. Through dilatation of the auricle it might fail to overcome the force of the ventricle, and the result would be the advent of a systolic regurgitant murmur.

LANCET

March 8, 1913.

Peritoneal Adhesions.—Joseph E. Adams conducted an experimental study of this subject and presents some interesting findings. Noninfective adhesions form readily after the introduction of sterile cotton or gauze, or the injection of emulsions of sterile sand into the peritoneal cavity without injury to the peritoneum. Such adhesions progress to the formation of fibrous bands just as do the infective adhesions, but they are far less extensive. Injection of scarlet red, which is reputed to have powers of causing cell proliferation, caused

absolutely no peritoneal adhesions. The introduction of sterile drainage tubes into an uninjured and sterile peritoneal cavity, or the fixation of sterile gauze pads to the peritoneal surface of the intestine, led, in many cases, to a lowering of the resistance of the peritoneal coat so that the bacteria from the lumen passed out into the adhesions. Such a finding suggests a serious danger in the introduction of drainage tubes in man, unless there is a definite and well delimited abscess cavity. Further, the introduction of sterile drainage tubes was followed in twenty-four hours by the complete coating of the tubes with a layer of fibrin and leucocytes. This further confirms the futility of draining the peritoneum in the absence of a definite abscess cavity. Even the use of lubricants, such as sterile olive oil, does not prevent the formation of adhesions around these tubes, but, in fact, seems to make the adhesions more dense than without the lubricant. Adams studied the movements of the omentum and found that this organ owes its motion solely to intestinal peristalsis. Its movement is slow and when it comes into contact with an abraded peritoneal area it adheres and finally unites therewith. The omentum may even be completely detached from its blood supply and, if left free in the abdominal cavity, it will continue to live. It does not have a tendency to form adhesions itself and its use as grafts is the most satisfactory means at present known of preventing the formation of adhesions.

Treatment of Pulmonary Tuberculosis.—Noel D. Bardswell analyzes the records of 1,082 patients sent to a single sanitarium. Of these, fifty-two, or 4.8 per cent., were found not to have tuberculosis and are not considered in the subsequent discussion. A total of 1,030 cases diagnosed as having pulmonary tuberculosis showed tubercle bacilli in 82.4 per cent., and there were 17.5 in which there were no bacilli found. Of the total 1,030 there have been 920 traced. It is this group which forms the basis for the following figures. The statistics are of the condition of these 920 cases at periods varying from one year and four months up to five years and four months after their discharge from the sanitarium. In 156 of these patients no tubercle bacilli were ever found, and of these, 89.1 per cent. are well or alive, and 10.9 per cent. are dead. Of 764 who did have bacilli, there were 183 in stage I and 83.6 per cent. of these are alive or well; out of 357 in the second stage, 61.6 per cent. are well or alive; and only 28.5 per cent. of the 224 patients in the third stage are well or alive. It is striking how well the records of the early cases having tubercle bacilli compare with those of the cases in which no bacilli could ever be found. The average patient with tubercle bacilli and still in the early stage of the disease does well under sanitarium treatment. The statistics of the cases in the third stage shows that little permanent benefit is to be expected from sanitarium treatment of this class. In the second stage, if only the onward march of the lung disease can be arrested, complete restoration to health and capacity for work is still to be looked for with confidence. Failing an efficient arrest, the lapse into a hopeless condition is inevitable. The series teaches that the disappearance of tubercle bacilli

from the sputum is a factor of the highest importance from the point of view of individual prognosis, and the advantage of having the sputum free from bacilli is of no less import in relation to the public health. In this entire series of patients none has received tuberculin.

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

February, 1913.

Diffuse Osteomyelitis from Nasal Sinus Suppuration.—Dan McKenzie describes two varieties of cranial osteomyelitis, the fulminating, which is fatal in a few days, and the slower type sometimes following nasal sinus suppuration. The duration of this latter is from three weeks to six months or even two years. The onset is very insidious. Following operation, the skin wound may be united and the temperature normal, when slight redness and swelling appear at the external wound. The tumefaction slowly progresses despite intervention, the wound gapes; pus becomes abundant. Pain may be severe, or may be but slight. If the sinus is opened again the bone will be found to be dead white or discolored, with pus emerging from the cut edges. Toxic symptoms now develop; edema of the soft parts at a distance from the sinus of origin shows itself; the disease extends from one bone to another, reaching down to the nasal bridge at times, pus collecting here and at the eyelids. The temperature shows a slow rise to a moderate continued fever. Rigors are unusual. Treatment consists in opening external abscesses as they form; resection of necrosed tables of the skull; evacuation of extradural pus collections. After an interval of weeks or months of apparent recovery, recurrence usually takes place. Death is caused by toxemia, asthenia, pyemia, or endocranial complication, i. e., extradural abscess, which is to be regarded as a regular feature of the disease, thrombophlebitis, cerebral abscess, or leptomeningitis.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 13, 1913.

Ureteral Obstruction.—Benjamin Tenney reports ten cases of this nature. Two symptoms appear in almost every condition which obstructs a ureter. One is pain between the point of obstruction and the tenth rib on the obstructed side. The pain varies from a dull ache to agony and may produce anything from nervous irritability to vomiting and unconsciousness. It is sometimes increased by motion, as in stone cases, sometimes brought on by a change from the horizontal to the upright position, as in cases with ureteral kink, and sometimes appears without regard to either, as in purulent or bleeding kidneys when the pain comes and goes quickly with the passage of some fibrin mass through the ureter. Tenderness may or may not correspond in location. When a patient is in pain from ureteral obstruction he is also tender over the affected kidney; when he is not in pain the tenderness may disappear. The other constant symptom is an alteration from the normal habits of urination. We may find increased frequency, urgency, incontinence, or the necessity of repeated attempts before the desire passes away. The presence of any one of these symptoms is a plain warn-

ing that something is wrong in the urinary tract—not necessarily in the kidney—and calls for further study of the case.

Typhoid Vaccination.—J. Herbert Young thus summarizes the present status of typhoid vaccination: 1. Typhoid vaccine as a prophylactic provides almost certain protection from typhoid fever; 2, typhoid vaccine as a therapeutic agent in active typhoid is still in the experimental stage; 3, as a therapeutic agent in chronic typhoid carriers it is the method that has given the best results, though it does not offer certain cure.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 15, 1913.

Operations on the Mammary Gland.—Deaver's statistics, although meagre, indicate in a general way the status of mammary carcinoma in regard to the prognosis of operative treatment. About one patient in five is permanently cured by the radical operation. If the inoperable cases which do not appear on hospital records were included in the statistics the percentage would probably be materially lessened. These results are highly disappointing unless compared with the results of past decades. A lack of faith in the surgery of this disease will be replaced by a healthy optimism where immediate operation is made on the discovery of a lump in the breast; when physicians learn to think of breast tumors in terms of operability and when injudicious operations are no longer excused on the ground of humanitarianism.

Prevention of Arteriosclerosis and Heart Disease in Otherwise Healthy Individuals Past Middle Life.—Louis F. Bishop concludes that the causes and prevention of heart disease have been considered as matters of great obscurity and to be in the hands of Providence. He emphasizes the analogy between the universally recognized idiosyncrasy of some persons to particular articles of protein food that give rise in them to symptoms of pain, and the unconscious idiosyncrasy of many others to aminoacids which produce damage without conscious symptoms. Periodic chemical examinations of supposedly healthy individuals past middle life would detect and correct conditions leading to heart disease. The writer inveighs against the abuse of saline laxatives, as they disturb the chemistry of the body and osmosis and tend to produce heart disease, and commends castor oil as the safest and best remedy for those threatened with aminoacid poisoning. Those who have a tendency to heart disease should receive courses of treatment at intervals, such as are given in some of the health resorts of Europe. With proper environment such treatment could be carried out at home.

New Preparalytic Symptom of Poliomyelitis.—John A. Colliver has made a few hundred observations of a symptom in sixteen cases which seemed absolutely characteristic of the preparalytic stage of infantile paralysis. It consists of a peculiar twitching, tremulous, or convulsive movement of certain groups of muscles, lasting from a few seconds to less than a minute. The amplitude of vibration exceeds that of a tremor, is not so constant and long as a convulsion, and more

regular than mere twitching, yet it has some elements of all of these. Usually affecting a part or whole of one or more limbs, the face or jaw, it may sometimes involve the whole body. The symptom usually lasts less than a second, and unless the patient is disturbed does not recur oftener than every hour or so, and may, therefore, be easily overlooked in the beginning. The spells later lengthen to a few seconds and recur at shorter intervals. There is often with this condition a peculiar cry, somewhat like the hydrocephalic. There is a slight convulsive movement, like a chill, at times, during which time there is apparent unconsciousness, and the eyes are set for a few seconds, and then becoming apparently normal again. This brief unconsciousness, with set eyes, may come on without noticeable convulsive movement, thus simulating petit mal. The writer has observed it as a twitching of the lips with tongue running in and out and a working jaw, preceding bulbar cases. The writer has not worked out to his own satisfaction the relation of the local symptom to the paralysis.

MEDICAL RECORD.

March 15, 1913.

Malignant Disease of the Tongue and Mouth.

—Robert Abbe says that sarcoma, of the round or spindle cell type, is apparently congenital in origin, though long latent, and may best be cut out. Carcinoma, on the other hand, is always the result of irritation, either by a tooth, a dental plate, tartar, a pipe stem, or tobacco. Tobacco seems to be the most frequent offender, for advanced cancer of the mouth is extremely rare except in one that has been a severe smoker, or has chewed tobacco. It is usually after twenty or thirty years that the beginning of an epithelioma shows and insidiously advances. It usually starts either at the contact points of the pipe, or streams of hot smoke on the tongue, or in the gutters where the nicotine lies in the mouth or where the quid rests between cheek and gum. The practical lesson is that when the first spot of leucoplakia appears it is wiser to cease the use of tobacco "at once and forever." When the inside of the cheek is extensively invaded by carcinoma, it may still be cured by excising a part of the cheek, but half of the lower jaw must be excised to permit free play in eating and to obtain sufficient sound tissue to close the defect. The writer concludes that thorough surgery is the supreme reliance in malignant disease of the mouth, and early operation the patient's chief hope of cure. Radium has its uses, but in advanced cases of cancer its good effect is transient; in giant cell sarcoma and in leucoplakia, however, it is a specific.

Occupation Neuroses.—Tom A. Williams asserts that the essential preliminary to treatment is the elimination of the genetic idea. The patient must be convinced that it is this idea that produces the disability and that his previous belief that the disability is of physical origin (of muscle, nerve, or brain) is positively erroneous. The psychodynamic genesis of his condition must be clearly comprehended by the patient. The next step is for him to reacquire control of the psychomotor mechanism requisite in his occupational acts. Practice can alone bring this about, and in proportion to the

length of time the perverted kinesis has existed, these efforts at rectification are difficult and prolonged. The writer insists that there is only one direct therapeutic means—psychotherapy, which requires for its best effect a well nourished nervous system. Defective hygiene must be rectified, but when this is done it is an aid only and not a cure. The same remarks apply to prophylaxis. Workers should be well nourished and fatigue minimized, but this alone will not prevent occupational neurosis if the ideational seeds germinate in the minds of the workers.

Municipal Clinic of San Francisco.—Julius Rosenstern discusses the subject of prostitution and venereal infection, and formulates certain requirements for the success of modern institutes for the sanitary regulation of prostitution. The regulation of prostitution should be administered by the municipalities or counties, and prostitution, while regularly and officially supervised, should not be punished criminally, but should be met with a spirit of helpful dignified sympathy. The clients of the institution should be educated as to the perils of their trade, the methods of their avoidance, and to appreciate the institute's beneficial services for their protection. The spirit of self dependence will be inculcated by charging a small examination fee, sufficient to meet the expenses of the institution, and will insure free and private medical, ambulatory, and nonlock hospital treatment. The landladies might assume part or all of the fee. A police detail attached to the institution is desirable for the surveillance and rounding up of delinquents. The control of examinations will be helped by affixing cards in the private rooms of houses of prostitution calling for the inspection of examination certificates by the visitors, but disabusing their minds as to a feeling of positive safety.

Tuberculosis in Early Life.—Edgar P. Cope-land refers to the frightful mortality of tuberculosis in early life, and has little to suggest in the way of treatment. So far as is known at present tuberculin as a therapeutic agent has disappointed the profession. Fifteen cases of cervical tuberculous adenitis, treated with tuberculin, showed no alteration in the course or character of the disease. Indeed most authorities are agreed that its use in childhood is not devoid of danger. The writer emphasizes that upon prophylaxis we are to place our hopes for results, as after infection is received, very little may be expected. The writer insists on one point, for laity and the profession alike, and that is a deep regard for the seriousness of whooping cough, measles, and influenza in their relation to tuberculosis, and the importance of providing a suitable environment for the young, who otherwise are doomed to the malady. Efficient prophylaxis is the watchword if we would hope for any considerable decrease in the terrible mortality of tuberculosis, for this mortality is highest in early life.

AMERICAN JOURNAL OF OPHTHALMOLOGY.

February, 1913.

Thiocyanates in the Body Fluids.—Bernard R. LeRoy makes some extraordinary claims on behalf of the thiocyanates which deserve investigation, for if his ideas are right and such results as

those he reports can be obtained even to a much less satisfactory degree, we have at our command a remedy of wonderfully rejuvenating power to act on the cells of the human body. He says: The first action of the thiocyanates in the body fluids is that of a chemical solvent. The gelatinous and mineral substances of the food are rendered more soluble and assimilable. Without their presence in proper physiological amounts certain essential constituents are caused to be continually precipitated somewhere within the body, while others are excreted in abnormal amounts, for instance, the precipitation of calcium, magnesium, and silicon in union with the fatty acids and gelatinous substances in cataracts, opacities, and scar tissue in the eye, and such systemic diseases as arteriosclerosis, chronic syphilis, chronic insanities, and other chronic conditions where the cells have been filled with a deposit of these substances from a slight clouding to a deep solid infiltration. A large amount of calcium and magnesium is to be found in the urine of persons suffering from chronic forms of pulmonary tuberculosis and other chronic conditions, while in all of these conditions the thiocyanates are found in greatly reduced amounts, or more often are absent. The more chronic the condition the more certain is the body to be absolutely free from the thiocyanates. If one wishes to enjoy life and to be free from many serious chronic forms of disease the thiocyanates must be present in the body fluids in amounts equal to that found in the body fluids of a young, healthy, rapidly growing girl of sixteen years. The presence or absence of the thiocyanates may be determined by an examination of the saliva, for if they are absent from the saliva they are not to be found in any of the body fluids, but if present there they are to be found in all. LeRoy asserts that the continuous retrograde movement from healthful life, through changing physiology, to complete stagnation in the cell or organ may be reversed in action by the proper administration of the thiocyanates; the precipitation is checked, the deposit is resolved and removed from the cell, and as this process takes place the primitive action of the cell is resumed, and the physiology of that cell returns toward normal as the cell clears. Furthermore, after the clouded opaque and "dead" cells have received this form of treatment, and after the grosser deposits have been dissolved and removed from the once disabled cells or organs, there remains no scar or other defect that may give the examiner the faintest clue concerning the character of the original diseased condition. All this requires time, what he terms physiological time. He reports five cases. The first was one of cicatrix resulting from a wound of the eye, of such an extent as to render the eye blind. Not even a shadow could be perceived when an object was passed between the eye and the sun, but electric tests showed that some power of vision was present. After six weeks of treatment the patient was able to see a ray of light which increased steadily. In six months the scar tissue over the cornea was nearly all gone. After twelve months the patient was able to read large print and to distinguish friends at a distance of fifty feet. The cataract present was also clearing up. At the end of nearly two and a half years the

lens was nearly clear, the adhesions of the iris were less so that certain portions of the iris reacted naturally, the eye had vision and acted with the other. No definite statement of the vision is given. The second case was one of opacity following ophthalmia neonatorum. The report of the mother is that there is no trace of scar tissue and that the child has the use of his eye. The third was a case of incipient cataract that cleared up under treatment. The fourth was one of senile cataract, of which there are slight traces after two years of treatment. The fifth was one of entropion cured in the same manner. The report of the last certainly leaves much to be desired. Nothing seems to have been done to remove the mechanical basis of her trouble, the continual rubbing of the eyelashes upon the cornea, except to pull the lashes out diligently, and every physician who does much work on the eye knows how utterly inefficient such a measure is. If there is anything in the suggested form of treatment it needs to be developed scientifically; the physiological basis demands confirmation, the dose needs to be carefully determined, and the results should be given in definite form with due regard to complicating conditions.

AMERICAN JOURNAL OF UROLOGY

January, 1913.

Diagnosis of Hemorrhage in Hydronephrosis.

—Marchais discusses the rare complication of hemorrhage into the hydronephrotic sac. The diagnosis is difficult and often is made only when the sac is incised. The prognosis is serious, and immediate operation is indicated. Nephrectomy should be performed if the opposite kidney is functioning normally.

Double Congenital Stricture of the Left Ureter with a Movable Calculus between the Points of Constriction.—Lower reports the case of a man of eighteen years, who gave a history of attacks of renal colic since infancy. A radiograph showed a calculus in the lower part of the left ureter. At operation a much dilated left ureter was found with a constriction of the ureter a few inches above the bladder; no stone could be found. Immediate radiography showed the stone to be near the kidney. A lumbar incision was made and a constriction of the ureter noted on a level with the lower pole of the kidney. The stone was found at this point, pushed down, and removed from the original incision in the ureter. Between the two points of constriction the ureter was as large as a loop of small intestine.

ARCHIVES OF DIAGNOSIS

January, 1913.

The Surgeon's Diagnosis in Neurasthenic Conditions.—R. T. Morris asserts that in diagnosing neurasthenia, or the relative values of various phases of the condition, the bacteriologist's report of colonic findings should be taken as the starting point. The toxins produced by many colonic microbes, bacterial or protozoan, are definitely known to be injurious to the cells of organs, and those influencing the ductless glands abnormally are largely derived from bacteria of the colon. The surgeon can help in many cases by fixing the loose kidney, suspending the sagging colon, and separating ad-

hesions that interfere with gastric or intestinal motility, but his work does not preclude a subsequent diagnosis of neurasthenia in the same cases.

Therapeutic Differential Diagnosis of Constitutional Dysmenorrhea.—S. W. Bandler has observed that in many cases of deficiency of ovarian function in young women there are digestive and nervous symptoms indicative of an actual and relative hyperthyroidism, and considers it important in the many instances where trouble occurs in association with menstruation—usually in the premenstrual phase, to distinguish between cases due to excess of the ovarian secretion itself and those in which there is hyperthyroidism due to deficiency of the antagonistic ovarian function. This distinction can often be readily made by the use of thyroid substance, the latter variety of cases being made distinctly worse by the drug in doses of one to five grains three times a day, while the former class is benefited by the thyroid substance. Where the ovarian function is deficient, ovarian substance is of value.

Atony of the Cecum (Typhlatonia).—H. Stern considers this condition very common. The most frequent etiological factors are malposition and structural alteration, the latter consisting generally of the so called "membranous pericolicitis," the pericolic veils preventing the normal expansion of the cecum and causing it to become atonic. Typhlatonia is a disease entity, though it may occur with other affections of the cecum, as well as with those of the appendix, ascending colon, ileum, right kidney, gallbladder, with partial or general enteroptosis, etc. It should not be confounded with cæcum mobile, which is not a disease entity, though it may occasion typhlatonia. The latter occurs often in young individuals, but may also exist later. It is characterized by obstinate constipation and irregularly occurring paroxysms of severe griping pain, usually lasting some hours. In some cases there is merely discomfort. There may be fulness at the site of the cecum and a dragging on the ascending colon. Palpation evinces a localized resistance or even a soft, elastic tumefaction. Percussion reveals circumscribed tympany. Ileocecal gurgling is most characteristic; where typhlectasia is also present radiography and mesial displacement of the cecal tympany and gurgling when the patient is on the left side are also of diagnostic value. The treatment consists of dietetic and physical measures.

Aneurysm of Thoracic Aorta.—C. G. Cumston asserts that in every case of aortic aneurysm, whether or not a history of syphilis is obtained, an intensive antisiphilitic treatment, especially by potassium iodide, should be resorted to at once.

Diagnostic Features of Phrenocardia.—J. Gutman states that while the phrenocardias or psychogenic sexual neuroses of Hertz are less recognized at present than other neurotic disturbances, they are common, possess a rather distinct etiology—abnormal sexual relationship—and are easily distinguishable. The chief characteristics are pain in the cardiac region, respiratory disturbances, and palpitation of the heart. Of diagnostic significance are general instability and transientness of all the patient's complaints, disproportion between objective and subjective phenomena, increase in the pulse rate upon the slightest mental effort, and restless sleep.

Family and Personal History Registers.—J. M. Taylor refers to the fact that physicians are frequently handicapped owing to the impossibility of obtaining definite and detailed information concerning family and personal antecedent events. He suggests that the head of every family keep a record of essential occurrences and data of all kinds in a specially prepared family history register. Blanks for personal histories are included.

LONG ISLAND MEDICAL JOURNAL.

February, 1913.

Blood Cultures, Simplified by New Apparatus.—William Lintz has devised a bottle fitted with a ground glass air tight stopper the top of which is ground to fit an ordinary blood culture needle. Through the centre of this projection there leads a small canal which opens into a groove in the side of the stopper near the inner face. This groove can be brought into apposition with a similar one in the neck of the bottle, thus opening a continuous canal from the outside to the interior of the bottle. By lubrication of the stopper with graphite it may be made to turn readily yet remain air tight. Into the bottle is placed a measured amount of finely powdered salt, or a small amount of some one of the liquid culture media and the stopper is inserted with the canal open. The bottle and culture medium are then sterilized by immersion in a boiling waterbath. The heat thus generated also serves to drive out much of the air contained within the bottle so that, if it is closed while in the bath, there will be a considerable vacuum on cooling. One then places the desired needle on the projecting tip and covers this with an inverted test tube. The whole is again sterilized and is ready for use at any time. The vacuum keeps. To use, one merely inserts the needle into a vein, after sterilization of the skin, and turns the stopper of the bottle so as to open the canal; the vacuum aspirates enough blood into the bottle; the stopper is again turned to close the canal; the whole withdrawn from the arm and shaken. It can then either be sent, warm, to the laboratory, or if a culture medium is used in the bottle, can be placed in the incubator or a thermos bottle and subsequently sent to a laboratory for examination. The method is simplicity itself, avoids all air contamination, and reduces the cost of blood cultures materially.

NEW YORK STATE JOURNAL OF MEDICINE.

February, 1913.

Dementia præcox without Delusions or Hallucinations.—George H. Kirby describes a group of cases in which there is a slowly developing and progressive shrinkage in the patient's energy and capacity for work, loss of interest in the ordinary affairs of life, and pronounced dulling in the emotional sphere, so that a condition of more or less pronounced apathy is established, without, however, the patient ever giving expression to any particular trend of ideas, suspicions, or delusions, and without the appearance of hallucinations. Individuals who deteriorate in such manner are undoubtedly to be found in large numbers among the dependent classes of the community. In most of these cases there was the appearance in childhood of a shut in type of personality, which is probably a very deeply rooted tendency and one which has much to do with later

developments. In close relation with this disposition is a difficulty in sexual adaptation, autoerotic traits developing early and masturbation becoming a fixed habit. The deterioration begins in most cases at about the age of puberty. In all of these cases, after many years' duration even, the personality remains well preserved, and in no case has there been found incoherence in thought, peculiarities of language, neologisms, etc. The chief factors in bringing about this deterioration are fundamental defects in makeup and faulty mental habits.

Bouillon Culture of *Staphylococcus pyogenes aureus* in Diphtheria Convalescents and *Bacillus Carriers*.—R. G. Wiener reports success with the spraying of the throat and nose of the diphtheria convalescent with fresh cultures of the staphylococcus. Such treatment should be applied every three hours, and the cultures must be fresh and living if success is to be secured. The result of such spraying is the rapid disappearance of the Klebs-Loeffler bacilli from the throat and nasal passages and the hastening of convalescence. In the carrier cases similar results are obtained in the removal of the organisms from the cavities of the mouth and nose.

PENNSYLVANIA MEDICAL JOURNAL.

February, 1913.

Desiccation Process of Tissue Destruction as Applied to Certain Pathological Conditions.—William L. Clark reviews the methods of applying the high tension current to tissues so as to cause rapid dehydration of the part with rupture of the delicate cell capsule and transformation of the tissue into a dry mass which subsequently separates and leaves soft scar tissue beneath. (See this JOURNAL for June 10, 1911, p. 1131.) He advocates the use of this method of tissue destruction in the following conditions as the result of his wide experience of the value of the method. Warts, elevated moles, x ray and senile keratoses can usually be removed by a single application of the electrode. Congenital naevi and acquired pigmentation such as tattoo marks may require more than one application. Chronic varicose and other granulating ulcerations heal more rapidly if treated once or twice, and acne vulgaris is peculiarly responsive to the treatment if the desiccation is applied to each individual papule until it and its surrounding area have become markedly anemic. Keloid may be removed by desiccation aided by the subsequent use of x rays. Chancroids and neoplasms in the bladder, and papillomata, caruncles, and granulations in the urethra are better treated by desiccation than by the direct application of the cauter. In suitable cases local lesions, such as neoplasms, in the larynx, throat, and pharynx, as well as sessile tumors in the nose all respond well to this method of destruction. In cancer desiccation should be employed only in cases in which it is superficial and has not invaded deeper structures. The treatment of superficial epitheliomata is very satisfactory. Cancers of the mucous membranes should not be treated by the method unless seen very early, on account of the possibility of there having already developed an invasion of the draining lymphatic structures.

Proceedings of Societies.

SOUTHERN MEDICAL ASSOCIATION.

Sixth Annual Meeting, Held at Jacksonville, Fla., November 12, 13, and 14, 1912.

The President, Dr. J. M. JACKSON, of Miami, Florida, in the Chair.

The Diagnosis of Malaria.—Dr. GRAHAM E. E. HENSON, of Jacksonville, stated that examination of the blood in cases of suspected malaria should be rigidly conducted for the detection of the parasites. Care should be taken so to time the taking of the smear as to insure the most likely time to find the parasites in the peripheral circulation. It should be the aim of the physician to make honest efforts to secure laboratory confirmation of the clinical findings before placing the patient on specific treatment, provided there were no symptoms suggesting the more pernicious type of the disease. In the event that quinine had been administered before the patient came under observation, a tentative diagnosis of malaria, even in the absence of the detection of the parasites, was justifiable under the following circumstances: 1. That the clinical history of malaria was obtainable; 2, that the patient had enlarged spleen; 3, that a leucopenia was present; 4, that the red cell count was below normal; 5, that the hemoglobin was reduced, and that the differential count showed an increased percentage of large mononuclears.

If these rules were adhered to, which might within certain limits be elastic, the many incorrect diagnoses of malaria that to-day covered a multitude of sins, and constituted the greatest blot in tropical and subtropical medicine, would be removed, and many of the unfortunates who to-day considered themselves the victims of chronic malaria, might be told what their condition really was, and possibly be relieved from further suffering.

Dr. E. C. THRASH, of Atlanta, spoke of a case that had come under his observation three or four weeks before in which a diagnosis of tuberculosis had been made by a local physician. For six or eight weeks the diagnosis lay between malaria and typhoid fever. He found the spleen of the patient very much enlarged, ruled out tuberculosis, and told the patient he thought he had either typhoid fever or malaria, and that he would soon decide between the two. He had been taking quinine systematically and regularly in all sorts of ways. He gave him treatment for ten days, watched him, found he had a rise of temperature continuously, and would occasionally have a chill. At the end of the eighth or ninth day he began to make examinations of the blood every six hours, and in the fourth examination he found estivoautumnal parasites. This man could have been saved a great deal of annoyance and a long attack of illness if the instructions outlined in Doctor Henson's paper had been carried out. He put the patient on four grains of cacodylate of sodium hypodermically daily and on large doses of quinine hypodermically, to which he responded promptly, and had had no trouble since.

Dr. CHARLES F. CRAIG, of the United States Army, mentioned two cases showing the importance of blood examinations in malaria. One man became unconscious on the street one day, was picked up, and taken to the emergency hospital. He died in a short time. The speaker had the opportunity of examining the brain and spleen in the case and found them both loaded with estivoautumnal parasites. Another case was at the Washington Hospital for a week before a blood examination was made. This patient died, and post mortem examination revealed the spleen filled with these parasites. It was the general impression that pernicious malaria did not occur in the city of Washington, yet within a month two cases occurred which were not recognized.

Dr. JOHN T. HALSEY, of New Orleans, said that in the month of October he had two cases of pernicious cerebral malaria at the Charity Hospital, New Orleans, in neither one of which did physical examination give a hint of malaria. These cases would end in recovery if the disease was recognized promptly and quinine given hypodermically in a very energetic manner.

Dr. JAMES H. RANDOLPH, of Jacksonville, reported three

cases of the cerebral form of malaria which recently came under his observation, and which illustrated in a very striking manner the importance of blood examinations. These cases were characterized by delirium.

Dr. WILLIAM ROSS, of Jacksonville, related the case of a child who had six convulsions in five hours, was unconscious, had absolutely all the symptoms of acute epidemic cerebrospinal meningitis, with a temperature of 102° F. His diagnosis was cerebrospinal meningitis. He was about to make a lumbar puncture. He took a blood smear, and found malarial parasites of both the estivoautumnal and tertian type. The child was unconscious for six days before it responded to quinine treatment.

Dr. CHARLES T. DRENNAN, of Hot Springs, Arkansas, said it was just as imperative to make blood examinations in suspected cases of rheumatism as it was to make urinalyses in conditions which would lead us to suspect interstitial nephritis.

Dr. L. A. GREEN, of Jacksonville, stated that the records of the State hospital showed that a number of patients admitted as insane were instances of pernicious malaria. These patients reacted promptly to quinine medication and recovered, but left the institution with the stigma that they had been insane, when, as a matter of fact, they had been suffering from malaria.

Doctor GREEN, of New Orleans, said that, in the fall of 1898, a patient was brought into the Charity Hospital with a diagnosis of chronic interstitial nephritis with uremia. An examination of the blood and urine was insisted upon, and disclosed the case to be one of pernicious malaria. The patient was treated promptly with quinine and recovered.

Dr. JOSEPH GOLDBERGER, of Washington, said there could be no doubt that in hospitals in these days a routine examination of the blood was absolutely essential, but the general practitioner did not, as a general rule, avail himself of this means of diagnosis in a great many cases, believing that it was unnecessary.

Dr. C. C. BASS, of New Orleans, referred to the time of taking blood from the patient, and said that if we were dealing with the estivoautumnal type, the parasite might not be present in the blood for six or eight hours. It was worth while to direct attention to the fact that the estivoautumnal case in which the clinical course was more or less tertian, with chills and intermittent fever, with perhaps normal temperature, was due to the fact that the parasites segmented almost all together in groups as they did in the tertian and quartan type. In such cases the number of parasites present in the blood after six or eight hours would be smaller than at any other time. There never occurred a time when there were not enough parasites in the blood of the patient who was having chills and fever from malaria, but that the parasites could be found. The proper time to take a blood examination for malaria was whenever one saw the patient.

Preliminary Study of Malaria in Alabama.—Dr. R. H. VON ESDOFF, of the United States Public Health Service, Mobile, Alabama, drew the following conclusions: 1. All forms of malarial fevers prevailed in the State of Alabama. 2. The types of infection in the order of prevalence were tertian, estivoautumnal, subtertian, quotidian, and quartan. 3. The colored race was a large factor in the spread of infection in whom the chronic type of malarial infection was proportionately greater than in the white. 4. To obtain an index of infection in the community, a blood examination should be made of adults as well as children of those who were permanent residents in such locality. 5. Latent or nonchronic cases should be treated vigorously for at least a month, and then with prophylactic doses of quinine for a period of from April to November. 6. Prophylactic doses of quinine should be taken by all persons in Alabama living in the localities known to be infected, between the period of April 1st to November 1st. The prophylactic dose advised and used by him was ten grains of quinine sulphate, given in five grain doses, morning and evening. 7. The microscope should be more generally used for making or confirming the diagnosis of malaria, or, if practicable, advantage should be taken of the State laboratory where examinations of blood would be made.

The Incidence of Malaria in the Puerperium.—Dr. J. V. FREEMAN, of Jacksonville, took the position that when a woman had elevation of temperature in the puerperium, whom the physician confined previously, and dur-

ing that time she gave a great deal of anxiety and trouble, and he discovered malarial infection, if he delivered her a second time he was justified in giving prophylactic doses of quinine, but he was not justified in giving it in every case he saw.

Dr. GRAHAM E. E. HENSON, of Jacksonville, said that owing to the fact that any rise of temperature in the puerperium caused great alarm not only to the attending physician, but also to the members of the family, it had been his custom for the last five years, as soon as a patient was delivered, to put her on ten grains of quinine a day. He did not think there was anyone who practised medicine who would more strongly oppose measures to mask infection than himself; at the same time, owing not only to the anxiety caused by fever in the puerperium, but also to the fact that malarial infection did develop, the mother was put on large doses of quinine to control the infection after it had once manifested itself. By following this line of procedure, and delivering 100 or more women, he had never seen malarial fever develop in the puerperium, and on that account he would strongly urge that these patients receive ten grain doses of quinine. He generally gave five grains in the morning and five grains at night.

Dr. STEVENS T. HARRIS, of Highlands, North Carolina, said with regard to fever returning periodically being classed as malaria, it was not true. It was absolutely erroneous to make a diagnosis of malaria from this standpoint. He had seen fever, chills, sweats, typically malarial in character recur without the presence of malaria. One might also have chills occurring periodically and with regularity in tuberculosis and possibly in other septic conditions. He would strongly urge that the use of the microscope was the only way to diagnose malaria.

Dr. B. B. SIMMS, of Talladega, Alabama, said he could have chills and fever, and even if we found the plasmodia we could not always call the case malaria, because there were frequently plasmodia in the blood. In Alabama it had been found that eleven per cent. of the people had malarial parasites in the blood without manifesting symptoms of malaria.

Dr. W. A. BOYD, of Columbia, South Carolina, believed that a woman who went through the trials and troubles of childbirth had suffered enough, and the physician should not as a routine impose upon her the necessity of caring for ten or fifteen grains of quinine because of a possible malaria. If they had a puerperal woman who showed a febrile condition, and were not sure of the actual condition present, he did not believe as obstetricians they were justified in putting that woman upon the routine treatment of quinine until they had proved to themselves and for their patient's benefit, as the result of bacteriological examination, that she was infected with malaria.

Production of Beriberiform Polyneuritis in Fowls with Substances other than Rice.—Dr. CREIGHTON WELLMAN, of New Orleans, stated that before he took up the problem experimentally, Professor Bass, in a series of experiments during 1911, showed that the characteristic polyneuritis of fowls could be produced by feeding them an exclusive diet of milled Louisiana white rice. During Professor Bass's subsequent absence in Central America, he carried on another series of experiments and observed that not only milled Louisiana rice would produce this condition, but also that a single diet of other carbohydrates would accomplish precisely the same result. For instance, he was able to produce this characteristic condition in fowls more rapidly and completely with cane sugar than with milled rice. Pure corn starch would produce the condition rather more slowly, but fully as completely as milled rice. He also found that a mixed diet plus small doses of oxalic acid would produce a condition indistinguishable from that caused by milled rice. Finally, like other observers, he produced the condition by semistarvation. These experiments were in each instance checked by controls. The production of a beriberiform neuritis in fowls by other substances than milled rice was a new observation and suggested a revision of the accepted views regarding rice as a sole cause of beriberi in man.

President's Address; Medical Education in the South.—Dr. J. M. JACKSON, of Miami, said the Association of Medical Colleges of the South could do much to solve the problem of medical education, as the intimate acquaintance of each with the other would make it possible to deal personally and individually with each school. Great would

be the day when the weaker and unequipped schools gave way and we should have centralized upon a few schools whose equipment and advantages in both didactic and clinical instruction would be equal to any school anywhere. He was astonished to see some years ago in the *Journal of the American Medical Association* how few professors entered medical schools with fitness as teachers of obstetrics, and he supposed it was quite so in other branches. When schools were run for the good of the profession and humanity, then should we have this improved condition. The medical profession was a quasi public profession and it should have in connection with it capable teachers and proper equipment of hospitals in localities of sufficient size to furnish ample clinical material, which was to-day considered so important a part of medical education, and these should be run for the benefit of the well as well as for the sick occupying their beds.

Public health was a nation's greatest asset and the conservation of it the greatest need of the day. This conservation could only be done by an educated people and a highly educated medical profession as directors.

Empiricism in Medicine.—Dr. H. H. MARTIN, of Savannah, said if they must use drugs in practice, they had the *United States Pharmacopæia*, and the *National Formulary* for reference, and in addition the Council on Pharmacy and Chemistry of the American Medical Association published a list of new and unofficial remedies which they had examined and approved. They should withdraw our support from the so called remedies and cures which were manufactured or compounded for the sole purpose of making money and not for the purpose of healing the sick. Let them, as medical men, intrusted with the health and lives of their fellowmen, come to a fuller realization of their duties and responsibilities. Let them shake off the superstitions and absurdities of empiricism; let them draw a sharper line between scientific and empiric medicine with "no compromise" as their slogan. Let them endeavor to secure the enactment of a law in each of the several States that would make the newspaper proprietor just as responsible civilly and criminally for the advertisements that went into his paper as he was for any article in the news columns.

Address in Surgery; the Thyroid and Hyperthyroidism.—Dr. STUART MCGUIRE, of Richmond, said that when a patient with exophthalmic goitre came to a surgeon, the case ought to be kept under observation and carefully studied for some days before deciding on the character of the operation best suited to the individual and the safest time to perform it. In the hands of experts, the mortality of operations for hyperthyroidism was now from two to five per cent., and eighty-five per cent. of those who recovered might be said to be symptomatic cures. It was neither honest nor expedient to make light of the operation nor to belittle its difficulties and dangers.

The figures quoted were from the statistics of master surgeons and by no means represented the results of the average operator. After a successful operation for hyperthyroidism the improvement in the patient was immediate and marked. No operation in surgery produced such quick and brilliant results. Tremor disappeared, the pulse fell to normal, the eyes became less and less wild, and restlessness and irritability were replaced by quiet and composure. The wound, as a rule, healed rapidly, and the patient was able to leave the hospital in from ten to fourteen days. Because the patient was well from the operation, and because the acute symptoms were relieved, was no ground for immediate return to the ordinary activities of life. Crile very properly stated that it required approximately the same time to recover from exophthalmic goitre as from a nervous breakdown from other causes. A successful operation should be followed by an adequate period of rest.

Vaccine Therapy.—Dr. IRWIN E. COLGIN, of Waco, Texas, said the most uniform results obtained from the use of vaccines were in cases of pyogenic infection, especially those caused by staphylococci, such as furunculosis and carbuncles. This was due to two factors, the chronicity of the infection and the uniformity of the causative organism. Success had also been the rule in treating cases of acne vulgaris. A combined vaccine of staphylococci and bacillus acne of Gilchrist was used based on the theory that the original nodule was due to bacillus acne, and the pustule to secondary infection of staphylococci. He advised giving fifty million staphylococci and ten million

bacilli acne as the initial dose. One should give increasing doses at intervals of from a week to ten days. In vaccine therapy success depended upon: 1. Choosing cases applicable to the use of bacterial vaccines; 2. determining the causative factor. One should not depend upon mixed vaccines, as usually if one got rid of the main factor Nature could take care of the balance of infection; 3. select the dose according to individual patients and do not follow set rules; 4. make the interval long enough between injections to let the body respond to the stimulation.

Dr. J. B. ELLIOTT, Jr., of New Orleans, said that last year he reported several cases of typhoid fever treated by vaccines. Since that time he had had four cases of typhoid fever treated in the same way by the use of typhoid vaccines. The results had been uniformly successful. The cases had all terminated about the twentieth or twenty-second day, and after three doses of vaccine there was generally a fall of the temperature to normal. He had failed to see any harm done in any case by the use of typhoid vaccines.

Dr. E. C. THRASH, of Atlanta, had been observing the use of these vaccines during the last few years and had been much chagrined at the profession treating them so indifferently. Any pharmaceutical drug that was put upon the market, without any value scarcely, or without endorsement of the profession, would be bought and prescribed empirically generally because the advertiser was behind it. If they could cure five per cent. or ten per cent. of the cases of specific disease, they had made a long stride in their therapy, because when they ruled out syphilis and malaria, they were about all the diseases they could cure with drugs. There was nothing more valuable in their therapeutic work than careful studies of the action of these vaccines and administering them intelligently.

Hydrothorax in Its Relation to Cardioresenal Lesions.

—Dr. FRANK A. JONES, of Memphis, drew the following conclusions: 1. Hydrothorax was often an acute condition instead of a part of a general dropsy. That acute nephritis was often ushered in by an attack of acute edema of the lungs, followed rapidly by acute fulminating hydrothorax. 2. In all probability, the attack of edema of the lung followed rapidly by hydrothorax was due to the same toxic agencies which, at the same time, produced the renal changes. 3. That in these cases passive congestion, venous stasis, etc., had nothing to do with the production of the edema; that the large black lung was analogous to the large red kidney. 4. When dyspnea was marked, either in cardiac or renal lesions, examine the patient just as critically for hydrothorax. 5. Hydrothorax, massive in nature, was often latent. 6. Saline cathartics and digitalis, when hydrothorax was present to any appreciable degree, were dangerous; they invited edema of the lungs and paralysis of the heart.

Relation of Gas Embolism to the Production of Artificial Pneumothorax.—Dr. STEVENS T. HARRIS, of Highlands, North Carolina, said from all sides came reports of the employment and success of artificial pneumothorax as a treatment of tuberculosis of the lung. It was safe to say that the results of no other method ever employed could compare with the wonderful results obtained by this procedure. It was the only real curative treatment for phthisis which had ever been devised. Surgical procedure had again scored a victory. Artificial pneumothorax, like other surgical methods, had its dangers, and chief among them was gas embolism. Nearly all of the deaths due to the treatment had been caused by this condition. The chances for gas embolism were remote after one had definitely proved a free pleura and more or less of an activity had been formed. He had never seen it occur when this was the case, except where there were thickened pleura and some adhesions, and where too high a pressure was suddenly produced.

Present Status of our Knowledge Regarding the Parasitic Amœbæ.—Dr. CHARLES F. CRAIG, of Washington, said we were still ignorant regarding the exact method of the transmission of these parasites from host to host, and we knew nothing whatever about the relation the species found in the lower animals bore to those found in man, so that researches along these lines might result in valuable knowledge regarding the epidemiology of amebic dysentery. The point of greatest practical importance to the physician was the demonstration of a harmless entameba in so large a proportion of healthy

persons, and those suffering from diseases other than dysentery, and the vital necessity of differentiating between this species and those causing disease, before making the diagnosis of amebic dysentery in patients who did not present typical clinical symptoms of the disease. He would, therefore, urge the greater use of the microscope on the diagnosis of the diseases of the intestinal tract, especially in regions where amebic dysentery and other parasitic infections of the intestine were endemic, believing that this one measure would be of more service in arriving at a correct diagnosis than any other command.

Some Economic Questions Related to Syphilis.—Dr. ISADORE DYER, of New Orleans, said he had employed salvarsan in a number of cases, and he had had no serious accidents, but he was still regretting that he was led to the indiscretion of employing a remedy which in his humble opinion had no advantage over tried medications, properly administered, for syphilis. The States were deliberating the establishment of laws requiring health certificates before marriage licenses were issued. It was more important to protect marriage contracts by requiring treatment for such diseases as syphilis than it was to aim at a restriction on natural inclinations. Hospitals for syphilis should be established in every State, not, as was averred, as an incentive to vice, but as a deterrent. If syphilitics were required to be hospitalized for the treatment of their disease, it would reduce the occurrence of syphilis and encourage proper treatment. The South had its peculiar problem in this regard with the negro population, which it was hard to educate in sanitary or moral prophylaxis. The whole question of syphilis was alive in their present society, and needed the careful study of those interested in the future generations of our people. While treatment might be of great importance, of more importance was the study of the ways and means to educate the profession and the public in the care and in the prevention of syphilis and its consequences.

Importance of the Recognition of Syphilis in Circulatory Disease.—Dr. JOHN T. HALSEY, of New Orleans, said the conclusions to be drawn from facts indicated were: 1. Syphilis very frequently produced lesions of any portion of the circulatory system, and did so during the early stages. A routine Wassermann test should be, and could be made in all such cases, nor was there any doubt that if this be done, much unnecessary suffering and disease would be prevented. 2. Those who treated syphilis in any stage, but particularly in the early phases, should be on the lookout for evidence of disturbed circulatory function, and, when such were found, they should not be satisfied to treat the syphilis alone, but should treat the heart as well. The coexistence of circulatory disease and positive or presumptive evidence of syphilis called for energetic antisiphilitic treatment, and it could not be too strongly emphasized that potassium iodide alone was not sufficient. Such patients must have mercury or salvarsan, the choice between which should be governed by various considerations.

Hygiene of Syphilis.—Dr. OSCAR DOWLING, of New Orleans, pointed out that as a preventive measure, segregation of the prostitute class, while unsatisfactory and undoubtedly a legalization of vice, afforded opportunity for medical supervision and treatment. Stringent, practical regulations, humane, adapted to local conditions, and rigidly enforced, would give results worth the effort involved. But to be effective, there should be no favor, no laxity, no escape. Certainty and justice should be the keynotes. The best means of getting rid of syphilis or any similar disease was to educate the people by energetic, practical work daily. Vigilance in the control of bad practices, activity in the practical things pertaining to home life, enforcement of every health ordinance and regulation were means which spread the gospel of cleanliness and health. The hygiene of syphilis was the same as the hygiene of other contagious diseases. From its nature, specific work should be done to enlighten everyone as to its origin and to correct the false notion that it was contracted only in one way.

Syphilis of the Ear.—Dr. N. M. HEGGIE, of Jacksonville, had seen only eight cases of primary labyrinthine deafness within the year, two of which were probably due to mumps and one to traumatism, leaving but five to be classified as syphilitic. In view of the fact that labyrinthine syphilis was not amenable to local treatment, he

would advise patients to avail themselves of the treatment recommended by a syphilographer, just as readily as were the lesion of another organ.

(To be concluded.)

Letters to the Editor.

EXAMINERS IN INSANITY.

NEW YORK, March 24, 1913.

To the Editor:

The Committee on Expert Medical Testimony of the New York State Medical Society has caused to be introduced into both houses of the State Legislature the following proposed bill:

An Act to amend the judiciary law, in relation to examining physicians.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1.—Article two of chapter thirty-five of the laws of nineteen hundred and nine, entitled "An act in relation to the administration of justice, constituting chapter thirty of the consolidated laws," is hereby amended by adding at the end thereof a new section, to be section thirty-one, to read as follows:

SECTION 31.—EXAMINING PHYSICIANS. In a criminal action or proceeding or in a special proceeding instituted by the State writ of habeas corpus or certiorari to inquire into the cause of detention, in which the soundness of mind of a person is in issue, the court, in which or the judge or justice before whom the action or special proceeding is pending may appoint not more than three disinterested competent physicians to examine such person as to his soundness of mind at the time of the examination. Any such examining physician may be sworn as a witness at the instance of any party to the action or proceeding. The compensation of such examining physician for making such examination and testifying when certified by the presiding judge or justice of the court or judge or justice making the appointment, shall be paid out of any funds available for the payment of and in the same manner as other court expenses.

SECTION 2.—This act shall take effect immediately.

This bill has been most carefully drawn by an expert on constitutional law at the instance of the committee. The expert who drafted the bill has taken into account the laws of all the other States and the decisions regarding them where declared unconstitutional.

It is his opinion that this bill will stand the constitutional test. He further believes that it is wiser to use it as an amendment to the judiciary law than to have it enacted as an entirely new legislation.

It is sincerely hoped by the Committee of the State Society that the profession of the State of New York will endorse this bill and stand back of it with a solid front. The abuses of medical expert testimony have been and are shameful. The committee deem it the better part of wisdom to confine its efforts to having the bill enacted covering only criminal cases.

The bill was introduced in the Senate on March 17th by Senator Walters, of Onondaga, and in the Assembly on the same date by Assemblyman Daly.

DWIGHT H. MURRAY, Chairman.

MINERALIZATION IN PHTHISIS.

BROOKLYN, NEW YORK, March 18, 1913.

To the Editor:

In an article entitled Tuberculosis published in your March 15, 1913, number, page 553, Dr. M. W. McDuffie gives a formula of mine in which even my name is not used, this formula having been published in the *Medical Record* for December 16, 1911. No wonder his patients had disturbance of the stomach as he gave double the dose of salts in 250 c. c. of water. The formula is made so that eight c. c., when in 250 c. c. of water, represents the salts as found in 250 c. c. of blood serum. It is a hypotonic mixture when complete. Doctor McDuffie was giving a hypertonic one which would not pass the membrane and enter the blood. He also says calcium is of no value, but my formula is not given for calcium alone, but to supply the deficient minerals of the organism that should be there to act on the defuncting adrenals to raise blood pressure. Doctor McDuffie does not understand how to use them. I have had between thirty and forty patients with high temperature get well; length of

time of treatment between thirty and sixty days. The correct formula is:

Sodium chloride, ...	34.4 grammes;
Sodium carbonate, ...	10.13 grammes;
Sodium phosphate, ...	1.1 grammes;
Calcium phosphate, ...	1.23 grammes;
Magnesium phosphate, ...	0.9 gramme;
Potassium carbonate, ...	2.6 grammes;
Boiled water, ...	120 c.c.

Sodium carbonate, sodium chloride, and potassium carbonate are dissolved in boiling water, the solution is filtered, and the other ingredients are added. The dose is eight c. c. or a dessertspoonful in a tumblerful or 250 c. c. of water every three hours.

Please compare formula as sent by me and the one as published by Doctor McDuffie; he has it wrong in his article.

CHARLES F. D'ARTOIS-FRANCIS, M. D.

AN ORGANISM IN INDIA INK?

St. Louis, March 24, 1913.

To the Editor:

In the use of India ink for the detection of spirochætae I have found the India ink *itself* to contain a motile organism about ten μ long and one thick. It is actively motile in all directions and retains its motility about twenty-four hours. The motility is not due to any Brownian movement, or current in the fluid between cover slip and slide.

I have found this organism in two different lots of the Gunther-Wagner Ink and in one lot of Higgins's American Drawing Ink. I am certain the ink has not been contaminated.

Some of the organisms are longer and thinner, very much resembling a spirochete, which might lead to a very serious mistake in diagnosis. Messrs. Bausch and Lomb cannot account for it.

Can you tell me the cause and a way to remedy it?

LAWRENCE SCHLENKER, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Development of the Human Body. By J. PLAYFAIR McMURRICH, A. M., Ph.D., LL.D., Professor of Anatomy in the University of Toronto, etc. Fourth Edition. With 285 Illustrations, Several in Colors. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. x-495. (Price, \$2.50.)

Professor McMurrich's manual of human embryology has justly earned the confidence of those whose duty it is to inculcate in the minds of medical students those principles which enable them to acquire a proper foundation for a successful career. A knowledge of the development of the human body is required, not only for a proper understanding of anatomical facts, but also of the many clinical phenomena due to teratological deviations. A clearer, more concise work than McMurrich's is hardly available. The present edition has been carefully brought up to date without, however, materially increasing the bulk of the volume.

Medical Men and the Law. By HUGH EMMETT CULBERTSON, of the Ohio and New York Bars, etc. Philadelphia and New York: Lea & Febiger, 1913. Pp. xv-325. (Price, \$3.)

Those of our readers who followed up the admirable series of articles on medical law recently concluded in the NEW YORK MEDICAL JOURNAL, will find this volume to contain much information of the same nature, quite distinct in character from what is known as medical jurisprudence. The volume treats of the legal rights, duties, and liabilities of physicians and surgeons, beginning with a series of useful definitions indicating who may legally practise medi-

cine, showing the relation between physician and patient, and proceeding to the discussion of compensation, malpractice, criminal liability, the exemption of practitioners from jury duty and execution, the physician as a witness, the right to protect professional reputation, the validity of contracts, and closing with much useful information on wills. Although intended mainly for the doctor, probably many a lawyer will wish to add this work to his library.

Safeguarding the Special Senses. By HENRY O. REIK, M.D., Formerly Associate in Ophthalmology and Otolaryngology in the Johns Hopkins University. Illustrated. Philadelphia: F. A. Davis Company, 1912. Pp. 123. (Price, 75 cents.)

This little book is written very simply, its contents are excellent, and we can only hope that it will secure as wide a circulation as it deserves, that it may fulfill its purpose of informing reasonably intelligent people how to keep healthy the eye, ear, nose, and throat, and how to recognize the signs of the presence of any abnormality. It seems to be better fitted for this purpose than most of the books that have the same design. A paragraph from the preface seems to be worthy of reproduction: "It is probably safe to say that fifty per cent. of the practice of specialists is made up of efforts to correct conditions that should never have been permitted to exist. They are constantly crying to the family physician and the public that prevention is not only cheaper, but easier and better than cure; that proper care of the eyes in early life prevents the onset of cataracts and other intraocular diseases in old age; that the removal of bad tonsils and adenoid growths permits the child to develop normally and insures against certain affections of the ear and of the respiratory tract; that proper attention to colds in the head and early treatment of running ears would wipe out eighty per cent. of the cases of brain abscess and purulent meningitis."

Die Digitalistherapie. Ihre Indikationen und Kontraindikationen. Von Dr. ARTHUR W. MEYER, Assistent der chirurgischen Klinik zu Heidelberg. Mit 23 Abbildungen im Text. Jena: Gustav Fischer, 1912. Pp. ix-138.

This valuable monograph, emanating from the Heidelberg medical clinic, consists of a general review of known facts concerning the applications of digitalis in practice. In the first part is to be found a sketch of the history of digitalis since its introduction by Withering, with a discussion of the indications and contraindications to its use, according to the opinions of various observers past and present. Next is given a summary account of the action of digitalis as revealed in experimental pharmacology. The remaining three fifths of the work are devoted to a detailed discussion of the indications for digitalis from the standpoint of the information derived from sphygmography, including especially the study of the venous pulse; also from the standpoint of the different valvular lesions, the presence or absence of functional or organic vascular disorders, the acute infections, etc. Much useful material is also contained on the questions of habituation to digitalis, abnormal individual response to the drug, its prophylactic administration, as well as on a number of other subjects. The work is particularly timely, and cannot fail to be of interest and value to the practitioner familiar with German.

A System of Surgery. Edited by C. C. CHOYCE, B.Sc., M.D., F.R.C.S., Dean and Teacher of Operative Surgery in the London School of Clinical Medicine, etc. Pathological Editor, J. MARTIN BEATTIE, M.A., M.D., C.M., Professor of Pathology and Bacteriology and Dean of the Faculty of Medicine in the University of Sheffield. In Three Volumes. Volume I: With 16 Colored Plates, 64 Black and White Plates, and 250 Illustrations in the Text. Pp. xxii-957. Volume II: With 18 Colored Plates, 8 Black and White Plates, and 375 Illustrations in the Text. Pp. xii-1105. New York: Funk & Wagnalls Company, 1912. (Price, \$21 for the set of three volumes.)

The first two volumes of this new system of surgery by English authors follows very closely on other surgical works of English origin. They compel the conclusion that there is a great revival of interest in surgery and surgical technic among English physicians. With its long list of collaborators the book is representative of the theoretical and practical surgery of Great Britain. The arrangement

of the subject matter into two parts, 1, general surgery with surgical pathology, and, 2, regional surgery, corresponds with the best usage of to-day among German, American, and English authors and is certainly the most convenient for the reader. The second and third volumes are devoted to the regional part and are divided among authors, fifty in number, whose special knowledge and experience give the work the stamp of authority. The articles are well written and plenty of space is given to the underlying pathological principles of each subject. The work testifies to the high character of the work now being done by the English surgeons, both in the field of surgical pathology and practice. The illustrations are excellent throughout, and this is particularly true of the plates showing tumors and other pathological specimens. The articles dealing with intestinal surgery are full and up to date. The book will be found of great value to the student, particularly the first volume dealing with surgical principles, and to the surgeon who wishes to keep abreast of the progress in general surgery and to know the best of English surgical practice.

Autointoxication and Disintoxication. By Dr. G. GUELPA (Paris). Translated by F. S. ARNOLD, B.A., M.B., B.Ch. With a Chapter on the Use of the Method in the Treatment of Morphine Addiction by OSCAR JENNINGS, M.D. (Paris). New York: Rebman Company, 1912. Pp. 152. (Price, \$1.25.)

In this little book the author advocates a treatment which he terms "rapid disintoxication" for various chronic disorders usually ascribed to autointoxication, but including, from his viewpoint, diabetes, even in cases in which gangrene has already appeared. He holds that the quantity of proteid food required to maintain nitrogenous equilibrium sufficiently to sustain health, strength, fitness, and weight, is much less, one third in fact, of the quantity laid down as a necessary minimum by the older writers on nutrition. The excess of proteid food ingested being rich in purins, it is prone to undergo decomposition in the intestine and form the toxic substances which underlie various chronic disorders. Complete abstinence for a few days and a copious daily purge with some saline is the foundation of Guelpa's treatment, the beneficial results of which are vouchsafed for by his translator after repeated trials. Though the treatment seems rather severe and will hardly be acceded to by many patients—at least in America—the premises of the author are in keeping with modern investigation and very suggestive from the therapeutic viewpoint.

Wheeler's Handbook of Medicine. By WILLIAM R. JACK, B.Sc., M.D., F.R.F.P.S.G., Assistant Physician to the Western Infirmary of Glasgow. Fourth Edition. New York: William Wood & Co., 1912. Pp. xi-532. (Price, \$3.)

This little book stands between the compend and the average textbook of practice. Such works can hardly be said to fill a need; yet they seem to meet a ready market since in the present case a fourth edition has been reached. The symptomatology is as a rule satisfying, but the therapeutic methods advocated are too few in most instances to afford aid to the physician who fails to give relief through what remedial agents are mentioned. Although it is asserted that the book has been brought up to date, some disorders seem to have been overlooked. The discovery that polished rice is the cause of beriberi, for instance, is not mentioned, though it has already saved victims by the thousands. We find no reference to the use of adrenal extractives to carry the patient through the asthenic stage of infections. The book is well written and neatly printed and may serve as a memory jogger for students.

Textbook of General and Special Pathology. By HENRY T. BROOKS, M.D., Formerly Professor of Pathology at the New York Postgraduate Medical School and Hospital. Illustrated with 525 Half Tone and Other Text Engravings, Also 15 Full Page Plates in Colors. Philadelphia: F. A. Davis Company, 1912. Pp. xviii-1127. (Price, \$6.)

To the already long list of textbooks on pathology there has been added one of some eleven hundred pages. It can hardly be considered, however, a valuable addition. There are several rather serious drawbacks to the likelihood of

its becoming popular. The definitions in many instances are neither concise nor clear. Throughout the book there is a diffuseness that interferes with a clear comprehension of the subject matter. One could carefully read the descriptions of the two chief forms of cirrhosis of the liver and after having done so be unable to give a résumé that would enable a second person to recognize the conditions. Concerning hemorrhagic pancreatitis, the statement is made that nothing certain is known of the etiology of this affection. On page 255 the author states that Hodgkin's granuloma (disease) has no connection with so called pseudoleukemia. On page 674 the terms pseudoleukemia, lymphomatosis, and Hodgkin's disease are used synonymously. In diabetes mellitus, atrophy of the pancreas is said to occur. No mention is made as to what portion, and from the context one gathers that it is the parenchyma. Of the 525 illustrations, 161 are taken from Langerhans's textbook published in 1904. With very few exceptions they are extremely poor and do not well represent the conditions they are supposed to display. Added to the foregoing drawbacks is a cost of six dollars.

L'Ipofisi Cerebrale, Faringea e la Glandola Pineale in Patologia. Dott. ALFONSO POPPI, Rhinologo e Chirurgo Comprimario Dell'Ospedale Maggiore di Bologna. Con 68 Figure, nel Testo e in 10 Tavole. Bologna: Paolo Neri, 1911. Pp. xi-214.

In this monograph of 200 pages the author aims to show that there exists a pathological connection between various ductless glands, notably the pituitary, thyroid, thymus, and adrenals, on the one hand, and nasopharyngeal diseases on the other. In support of his views he mentions cases of exophthalmic goitre cured or benefited by intranasal operation, cases of simple exophthalmos, of Addisonian bronzing in connection with adenoid vegetations, of tumor of the hypophysis with hypertrophy of the pharyngeal tonsil, etc. The original cause of this morbid relationship is ascribed by the author to fetal anomalies of the pituitary, which in turn would disturb the relations between this organ and the other ductless glands. Poppi's work is a valuable contribution to a new field of considerable promise for the rhinologist.

Physiologische Uebungen und Demonstrationen für Studierende. Von Dr. ROBERT TIGERSTEDT, Professor der Physiologie an der Universität Helsingfors, Finnland. Mit 327 Abbildungen im Text. Leipzig: S. Hirzel, 1913. Pp. xvi-402.

The author planned this book as an addendum to the textbooks on physiology. He gives a number of physiological experiments which will illustrate, when properly performed, the important facts brought forward in a lecture on physiology. But these experiments should be made not only by the lecturer but also, and this is very important, by the student. For the latter the book is especially written. As these experiments necessitate a good deal of experience which the student does usually not possess the book will assist him and make him proficient in his experimental work. The advice given here can only seldom be found in textbooks as it would make them too voluminous and these books suffer already from too much detail. For the researcher in physiology Professor Tigerstedt's book is a great help, and to him it can be well recommended.

The Interpretation of Radium. By FREDERICK SODDY, M.A., F.R.S., Independent Lecturer in Physical Chemistry and Radioactivity in the University of Glasgow. With Illustrations. Third Edition. New York: G. P. Putnam's Sons, 1912. Pp. xvi-284.

This handy volume is a useful compendium of our present knowledge in a field of growing importance for the physicist as well as the physician, dealing as it does not only with radium and the other members of the uranium series, but also with thorium, the new radioactive substances, mesothorium and radiothorium, and actinium. It is not, strictly speaking, a medical work, since it does not refer to any of the possible therapeutical applications of the newly discovered forces; but it is of value as a basis of study for those interested in the subject, and as a point of departure into the more limited field of their practical use. It can be recommended to the student who needs the latest facts of this attractive subject presented in concise and accessible form. A number of pictures and diagrams elucidate the text.

BOOK AND MAGAZINE NOTES.

Readers of Sir Conan Doyle's amusing story, *The Poison Belt*, which begins in the April issue of the *Strand Magazine*, cannot fail to be reminded of the central idea of H. G. Wells's *The Comet*, although in that tale the etheric belt of peculiar properties through which the earth was supposed to pass had a beneficent influence on humanity. Jules Verne's *Experiment of Doctor Ox* also used the same idea, that of a gas surrounding mankind. Professor Challenger, the hero of the new story, is a joyful creation. Our solar system has been usually regarded with respect and admiration from the time of Hebrew poets to that of the most crass materialists of the nineteenth century, but in the mind of the combative Challenger, it is "a little and obscure planetary system to which we belong. A third rate sun, with its ragtag and bobtail of insignificant satellites, . . . we float toward . . . some squalid catastrophe."

Arthur B. Reeve, who has disclosed considerable knowledge of the criminal classes in his stories about his scientific detective, Craig Kennedy, which have appeared in various magazines, states in a recent issue of the *Popular* that a combination of chloral hydrate, hyoscine, and cannabis indica is the latest narcotic used by drug habitués. We have dwelt upon the drug factor in recent crime in our editorial columns, and we insist that such work as smashing plate glass windows on Broadway in the midst of theatre crowds belongs only to the insane or bemused mind. The treatment of drug habituation by substitution so popular with quack empirics would find a pretty problem in a victim of the mixture mentioned by Mr. Reeve. We might ask why recent proposed legislation concerning narcotics makes no mention of chloral, henbane, and hashish; would laws about these drugs not permit of sufficient impertinent lay meddling with medical men?

W. C. Rivers, author of *Walt Whitman's Anomaly* (London: George Allen & Company, Ltd.; price 2s. 6d.), is careful to state that the sale of the book is restricted to members of the legal and medical professions. The anomaly in question was the sexual inversion of the poet, and the impartial reader will agree that Mr. Rivers has proved his thesis. Some readers may ask *Cui bono?* These matters are of paramount importance, however, and it is time that American and British psychologists gave them the attention they deserve. It has been the custom among Anglo-Saxon writers either to ignore or to give a horrified denial in cases of this kind, as they have been supposed to be due merely to a voluntary depravity. Now that they are known to be organic and, moreover, frequently associated with genius and even great talent, as in Whitman's case, they will receive due attention from the profession at large and not merely from the few disciples of Freud. A psyche to which belonged Wilde, Sir Francis Bacon, probably even Shakespeare, to say nothing of numerous Greek and Roman writers and a hero or two of the Middle Ages, demands rigid and microscopic scrutiny. When its subjects lose their self control it is a special asylum not a jail that claims them.

Of *Music and Health*, which makes its bow as a magazine with the spring number dated March, we may say that it seems to have been issued somewhat hastily before sufficient convincing copy had been secured. We are flattered to have cited at length a communication from the NEW YORK MEDICAL JOURNAL by our friend, John Knott, of Dublin, Music as a Therapeutic Agent. The editor of *Music and Health* is Eva Augusta Vescelius, the teacher of the principles of harmony; we hope she will associate with her a medical therapist and so escape the otherwise inevitable vagaries of a nonprofessional therapy. What matter has been collected for this issue is interesting and the editor's plan to increase the supply of free municipal music is most praiseworthy. The magazine is published at Croton-on-Hudson, N. Y., at 25 cents the copy.

That sterling work, *The Family*, by Charles Franklin Thwing and Carrie F. Butler Thwing (Boston: Lothrop, Lee & Shepard Co.), which has been in the bookshops for twenty-eight years, has just made its reappearance in a new and revised edition. Beside its value as a textbook of unusual interest for colleges, its careful historical accuracy and impartial tone make it an excellent document for the medical reader who cares for general culture. Its fairness may be judged from the fact that while it pays due attention to

the teaching of Christ and the various churches concerning the family, it observes of H. G. Wells that much he has said is "as true in fact as it is brilliant in phrase." Of venereal disease as a cause of divorce the book is silent; an inexcusable omission we think, even in a book designed partly for colleges. As reproduction is at the root of family life, such destructive factors as syphilis and gonorrhea demand the fullest investigation and discussion, especially as there is no longer any doubt that they are at the root of an enormous proportion of marital unhappiness. As far as it goes, however, *The Family* is a fine work; used as a basis of his lectures by a thoroughly informed and fearless teacher, it will help to spread abroad much needed information.

 Miscellany.

Doctor Trudeau and the Seeley Bill.—An inquiry was recently addressed to Dr. E. C. Trudeau, of Saranac Lake, remarks the *New York Times* for March 21st, asking what he thought of the Seeley bill making it illegal for any except the registered graduates of hospital training schools to describe themselves as "nurses" when seeking or taking employment as attendants of the sick. The reply elicited, coming as it did from a man of Doctor Trudeau's experience and eminence, ought to have, and doubtless will have, much weight with the intelligent and thoughtful members of the Legislature. If they give it the attention it deserves, there can be no question as to what action they will take on this effort, at once indefensible and reprehensible, to create a monopoly injurious to public interests.

The regular registered nurse, Doctor Trudeau says, will not take care of tuberculous patients if she can help it, and even when she will it is but rarely that the victims of this long malady can afford to pay the \$25 a week which is the least she will accept. At Saranac Lake, therefore, it has been found necessary to use unregistered nurses, and these have proved to be efficient, especially after they have received some training, partly through service and partly from instruction, in caring for consumptives. After a year or two of this work these women are not eligible for registration, indeed, but they are certainly "nurses" and have a right to add to that ancient and honorable title any qualification which without deception expresses their superiority to the untaught attendant.

Nobody can deny either the utility or the competency of the regularly trained hospital graduate, and none would object to protecting her from rivals who falsely pretended to be her equals in her own field. It would be quite another thing, however, to give her the exclusive use of a common word like "nurse," for that would simply mean putting into her not too considerate hands another implement for compelling the payment of fees in many cases cruelly burdensome. The fully trained nurses aspire to recognition as occupying a position analogous to that of the doctor, but they do not justify the aspiration by confessing and acting upon the duty of giving their services to all who need them, regardless of whether payment is to follow or not. When the registered nurses do that it will be quite time enough for them to insist that there are no nurses except themselves.

Consumption Cure Frauds.—In the vocabulary of the consumptive, says the *Journal of the Outdoor Life* for March, 1913, there is probably no other single word which is so full of meaning, and which appeals to him so strongly as the short word "cure." It means both the completed task and the restoration to health, and also the means by which the recovery is brought about. Its outlook is to the future and its inspiration is hope.

This inherent factor in tuberculosis, combined with the worldwide campaign against the disease, has encouraged the production of hundreds of efforts to cure consumption. Some of these attempts such as the use of certain home made remedies are results of delusion on the part of individuals who think that they have found a real specific for tuberculosis, while others, too numerous to mention, are exploited by those who know that their alleged cures have no virtue and who are simply playing upon the consumptive's easy susceptibility to any suggestion as to a cure for his disease in order to gain a financial advantage.

For some time the *Journal of Outdoor Life* has been considering a plan whereby it might inform its readers frankly concerning the real character of certain of these widely advertised consumptive "cures" and the methods employed by their promoters. It is with more than usual pleasure that the editor is able to announce that, beginning with the April number, a series of articles exposing a number of alleged cures for consumption will be published.

A rough estimate as to the amount of money being spent by tuberculosis patients on fraudulent cures for consumption every year indicates that at least \$15,000,000 is poured annually into the coffers of the exploiters of these alleged remedies. How much money the readers of the *Journal of the Outdoor Life* are spending in vain on "cures" of this character will probably never be known, but the editor hopes that the articles which will be published will result in a renewed determination on the part of many to fight tuberculosis by the only methods recognized by competent medical opinion.

Meetings of Local Medical Societies.

TUESDAY, April 1st.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Medical Association of Troy and Vicinity; Long Island Medical Society; Amsterdam City Medical Society; Lockport Academy of Medicine; Hudson County, N. J., Medical Association (Jersey City); Bridgeport, Conn., Medical Association.

WEDNESDAY, April 2d.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Bronx Medical Association; Elmira Academy of Medicine; Schenectady Academy of Medicine.

THURSDAY, April 3d.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Dansville Medical Association; Practitioners' Club, Buffalo; Geneva Medical Society.

FRIDAY, April 4th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society, New York; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society

Official News.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 22, 1913:

Billings, Frank, First Lieutenant, Medical Reserve Corps, Associate Professor, Medical School, U. S. Army. Left Chicago on March 17th for Washington, D. C., to lecture at the Army Medical School. **Cole, C. L.**, Captain, Medical Corps. Ordered to Fort Sam Houston, Texas, Department of Laboratories. **Edger, B. J.**, Major, Medical Corps. Relieved from duty at Fort William Henry Harrison, Montana, and ordered to Fort George Wright, Washington, relieving Major E. A. Deen, who, upon being thus relieved, will proceed to the Presidio of Monterey, California, for duty, relieving Major William F. Lewis, who will proceed to the Presidio of San Francisco, Cal., for duty. **Loving, R. C.**, Captain, Medical Corps. Ordered to the Army General Hospital, Fort Bayard, New Mexico, for duty. **Lyster, W. J. L.**, Major, Medical Corps. Returned from leave of absence to Fort Oglethorpe on March 13th. **Page, Henry**, Major, Medical Corps. Granted leave of absence for three months and eleven days, with permission to go beyond the seas. **Schmitter, F.**, Captain, Medical Corps. Relieved from duty at Fort Greble on March 15th, and left post on leave of absence

for one month and fifteen days. **Thode, R. Frederick**, First Lieutenant, Medical Reserve Corps. Ordered to active duty on April 1, 1913, and will proceed to Fort Hamilton, N. Y. **Van Kirk, H. H.**, and **Worthington, J. A.**, First Lieutenants, Medical Corps. Relieved from duty in the Southern Department and will report to the Commanding General of the Western Department for duty.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending March 22, 1913:

Davis, R. G., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Proving Ground, Indian Head, Md. **Huff, E. P.**, Passed Assistant Surgeon. Detached from the marine detachment on the U. S. S. *Prairie* and ordered to the U. S. S. *Florida*. **Lovering, P. A.**, Medical Director. Detached from the Naval Hospital, Mare Island, Cal., and ordered to Washington, D. C., and to await orders. **Tompkins, J. A.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the Navy Yard, New York, N. Y.

Births, Marriages, and Deaths.

Married.

Dees—Groome.—In Greensboro, N. C., on Saturday, March 15th, Dr. Rigdon Osmond Dees and Miss Helen Hazel Groome. **Holcombe—Bagenstose.**—In Philadelphia, on Saturday, March 8th, Dr. Guy T. Holcombe and Miss Emily Bagenstose. **Johnson—Varney.**—In Lynn, Mass., on Saturday, March 15th, Dr. Harold Abbott Johnson and Dr. Edith C. Varney. **Talbot—Mitcheson.**—In Marinette, Wis., on Wednesday, March 12th, Dr. Paul Tilman Talbot, of New Orleans, and Miss Jenny Swart Mitcheson.

Died.

Adams.—In Stamford, Conn., on Monday, March 17th, Dr. George S. Adams, of Westboro, Mass., aged fifty-five years. **Bellamy.**—In Irondequoit, N. Y., on Friday, March 14th, Dr. Archibald Waite Bellamy, aged forty-four years. **Brady.**—In Girardville, Pa., on Sunday, March 16th, Dr. Sobieski H. Brady, aged sixty years. **Bronson.**—In Lowville, N. Y., on Sunday, March 16th, Dr. Miles Hall Bronson, aged seventy-eight years. **Cutler.**—In Boston, on Saturday, March 15th, Dr. James Tucker Cutler, aged forty-eight years. **Gue.**—In Oklahoma City, Okla., on Wednesday, March 12th, Dr. Arthur E. Gue. **Hoagland.**—In Rural Grove, N. Y., on Monday, February 24th, Dr. George Bradford Hoagland, aged forty-eight years. **Knight.**—In Chaplin, Conn., on Monday, March 10th, Dr. Charles Milo Knight, aged fifty-six years. **Knowles.**—In Grand Rapids, Mich., on Tuesday, March 11th, Dr. Weston O. Knowles. **Peltier.**—In Hartford, Conn., on Friday, March 21st, Dr. Frank Hamilton Peltier, aged forty years. **Simons.**—In Warroad, Minn., on Wednesday, March 12th, Dr. H. R. Simons. **Six.**—In Lawrence, Mich., on Tuesday, March 11th, Dr. Arthur G. Six. **Skeel.**—In St. Louis, Mo., on Saturday, March 15th, Dr. Samuel Coleridge Skeel, aged seventy-four years. **Stanley.**—In Brooklyn, N. Y., on Sunday, March 23d, Dr. Grant Stanley, of Sea Cliff, aged thirty-eight years. **Stevens.**—In Peru, Kansas, on Wednesday, March 12th, Dr. Joseph D. Stevens, aged seventy-six years. **Strauss.**—In St. Louis, Mo., on Saturday, March 15th, Dr. Leon Strauss, aged fifty-six years. **Strong.**—In Saratoga Springs, N. Y., on Monday, March 17th, Dr. Sylvester Emery Strong, aged seventy-six years. **Stubblefield.**—In Nashville, Tenn., on Wednesday, March 12th, Dr. David R. Stubblefield, aged fifty-six years. **Van Valkenberg.**—In Sharon, N. Y., on Thursday, March 6th, Dr. Jacob J. Van Valkenberg, aged seventy-five years. **Waite.**—In Pittsfield, Mass., on Tuesday, March 18th, Dr. Lorenzo Waite, aged eighty-four years. **Welliver.**—In Dayton, Ohio, on Friday, March 14th, Dr. James E. Welliver, aged sixty-two years. **Winton.**—In Cincinnati, Ohio, on Thursday, March 13th, Dr. Charles F. Winton, aged fifty years.



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